WEBER COUNTY



WEBER COUNTY, UTAH

PRE-DISASTER MITIGATION PLAN

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Executive Summary

Hazard mitigation involves any sustained action to reduce or eliminate the long-term risk to human life and property from hazards. Hazard mitigation planning is the process by which states, territories, local governments, tribes, and special districts develop a strategic vision for reducing disaster risk. This Pre-Disaster Mitigation (PDM) Plan was collaboratively developed by a wide range of communities, special districts, stakeholders, and public partners. It reflects the goals, values, and intentions of the Plan participants to help reduce risk and ultimately save lives.

Plan History and Mission

In 2009, the Wasatch Front Regional Council developed a PDM Plan, which was approved by various cities, counties, the State of Utah, and the Federal Emergency Management Agency (FEMA). In 2016, Weber County, in partnership with jurisdictions in the County, used this Plan to create its own specific PDM Plan to reduce the County's vulnerability to natural hazards. The 2016 PDM Plan was developed to enhance public policy, minimize vulnerability, and promote a sustainable community by increasing public awareness, documenting resources for risk reduction, and guiding community development activities. Its goal was to protect citizens, critical facilities, infrastructure, private property, and the natural environment. By doing so, that Plan aimed to create a less vulnerable and more sustainable community.

Plan Update

Weber County experienced steady and significant population growth of almost 10% since its previous Plan. Property values in the area have also increased exponentially in that time. This growth has increased the potential impact from future hazard events, and therefore increased the priority to update the hazard mitigation plan.

Meanwhile, FEMA's approval of a PDM Plan is valid for only 5 years. To maintain its grant eligibility, Weber County began the process of updating its 2016 PDM Plan using the County's staff in 2020. After receiving the state's initial feedback on the County's proposed updates to the 2016 PDM Plan in late 2021, the County put the project out to bid in July 2022 and selected a consulting company to support the planning initiative. The update process started again in the fall of 2022.

This Plan represents an update of the 2016 PDM Plan. Since the fall of 2022, the Plan participants have completed extensive work to build on the 2021 draft, including incorporating the most current demographic data, maps, vulnerability assessments, loss estimates, and mitigation projects. The 2024 version of this Plan continues to build upon the draft update submitted to the state in 2023. It includes additional analysis of each hazard and a revised description of the planning process, including public outreach, and more clearly defined mitigation goals.

Organization of the Plan

As with the County's 2016 PDM Plan, this update was developed and structured according to the rules and regulations established under 44 Code of Federal Regulations (CFR), Section 201.6. It has been organized to allow for easy review and public consumption. It begins with a Community Profile, which describes the planning area, including changes in development and demographics. Next, the Planning Process is described, including additional details on who participated or was invited to participate in the Plan update, including the public. Then, each hazard has been profiled in the Risk Assessment, including the location, extent, previous occurrences, probability of future occurrences, and vulnerability of the planning area to each hazard. Furthermore, the Plan participants evaluated their resources to complete mitigation in the Capability Assessment. The Mitigation Strategy compiles all the goals and mitigation actions the plan participants selected to help reduce risk across the planning area. Finally, the Plan Maintenance section outlines how this plan will be monitored, evaluated, and updated, and the Plan Adoption And Implementation section will incorporate plan adoption resolution letters as they become available.

The Plan is supported by appendices, including an Effectiveness Evaluation Tool—which will also be used during the Plan maintenance process—a Glossary of Terms and Acronyms, References used in this Plan, Results from the Public Survey, a list of General Mitigation Strategies, and copies of the Hazard Vulnerability Analyses (HVAs) of the participants,

Plan Financing

This PDM Plan was financed and developed under the Pre-Disaster Natural Hazard Mitigation Program guidelines established by FEMA and the Utah Department of Public Safety, Division of Emergency Management (DEM).

Participation in the PDM Plan Update

This PDM Plan is the result of a collaborative effort between DEM, Weber County, the participating jurisdictions and organizations, many stakeholders like the Utah Transit Authority and Bureau of Reclamation, and over 200 public participants. The plan participants provided ample opportunity for public participation and review of the Plan through public presentations, a digital survey, in-person engagement opportunities, a draft plan website, and a chance to review the 2023 draft PDM, The draft version of this Plan was also made publicly accessible on the County's website (https://weberhazardplan.org) for most of the planning and development period. All comments, questions, and discussions from these activities were given thoughtful consideration as the Plan was developed.

Hazard Identification

The 2024 PDM Plan addresses the 14 hazards most applicable to Weber County:

- Avalanche
- Dam Failure
- Drought
- Earthquake
- Extreme Cold
- Extreme Heat
- Flood
- Invasive Species
- Landslide
- Problem Soils
- Thunderstorm
- Tornadoes
- Wildfire
- Winter Storms

These hazards were identified on the basis of a hazard identification study that recognized them as being the most prevalent and posing the most risk to Weber County. This analysis was further refined upon consulting with DEM regarding current FEMA planning guidelines. While it is recognized that dam failure itself is not a natural hazard, the potential impact on Weber County from a catastrophic dam failure is likely to be so severe that it warranted inclusion in the Plan. Not all Plan participants elected to profile all hazards. The rationale for omitting some hazards, including a lack of risk and a lack of legal authority to mitigate certain types of events, is described further in the Plan.

Since the 2016 PDM Plan was approved, Weber County has experienced an increase in the number and intensity of natural disasters. This increase, along with recommendations from FEMA, has highlighted the need for the County to address how the hazards identified may be impacted by climate change in this PDM Plan.

Mitigation Goals

The mitigation strategy is often considered the heart of the Plan. As a part of this Plan update, Plan participants evaluated and selected a comprehensive range of goals, objectives, and actions which could help reduce risk across Weber County. The following goals were selected for this Plan:

- Protect life and property by prioritizing actions that reduce risk to critical infrastructure and community lifelines, including safety and security, health and medical, and communication lifelines.
- Promote opportunities to protect developed property, homes, businesses, industry, and educational institutions.
- Implement actions which support broader environmental, social, and economic goals of the participants and their communities.
- Build partnerships and county-wide opportunities to implement mitigation.
- Consider nature-based solutions and integrate measures which preserve natural features of the environment whenever possible.
- Promote private and public sectors' awareness of the risks they may be exposed to and potential mitigation measures to reduce those risks.

- Reduce the potential impacts of flooding by promoting awareness of this risk and developing relationships and partnerships in high-impact areas.

Acknowledgments

Weber County would like to extend its appreciation to the following agencies, which assisted in the development of this PDM Plan.

- Federal Emergency Management Agency (FEMA)
- Bureau of Reclamation
- National Weather Service
- National Centers for Environmental Information
- US Army Corps of Engineers
- Utah Department of Public Safety Division of Emergency Management (DEM)
- Utah Geological Survey
- Utah Division of Forestry, Fire and State Lands
- Utah Department of Agriculture and Food
- Utah Avalanche Center
- Utah Transportation Authority
- Weber County Commission
- Weber County Planning Commission
- Weber County Departments/Divisions:
  - Assessor's Office
  - Engineering Department
  - GIS Division
  - Roads Department
  - Sheriff's Office – Emergency Management and Homeland Security Departments
- City of Farr West
- City of Harrisville
- City of Hooper
- City of Huntsville
- City of Marriott–Slaterville
- City of North Ogden
- City of Plain City
- City of Pleasant View
- City of Riverdale
- City of Roy
- City of South Ogden
- City of Uintah
- City of Washington Terrace
- City of West Haven
- Central Weber Sewer Improvement District
- McKay Dee Hospital
- North View Fire District
- Ogden Regional Medical Center
- Ogden School District
- Ogden-Weber Technical College
- Pineview Water Systems
- Roy Water Conservancy District
- Weber Area Council of Governments
- Weber Area Dispatch 911
- Weber Basin Water Conservancy District
- Weber Fire District
- Weber Human Services
- Weber School District
- Weber–Morgan Health Department

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Community Profile

This section provides an overview of the current conditions in Weber County and its 15 cities and towns, including the history and current environmental and socioeconomic factors: geography, topography, climate, population, economy, housing, land use, and development trends. Figure 1 is a profile map of Weber County and illustrates its location in the State of Utah. Figure 2 shows the water district boundaries in the County.

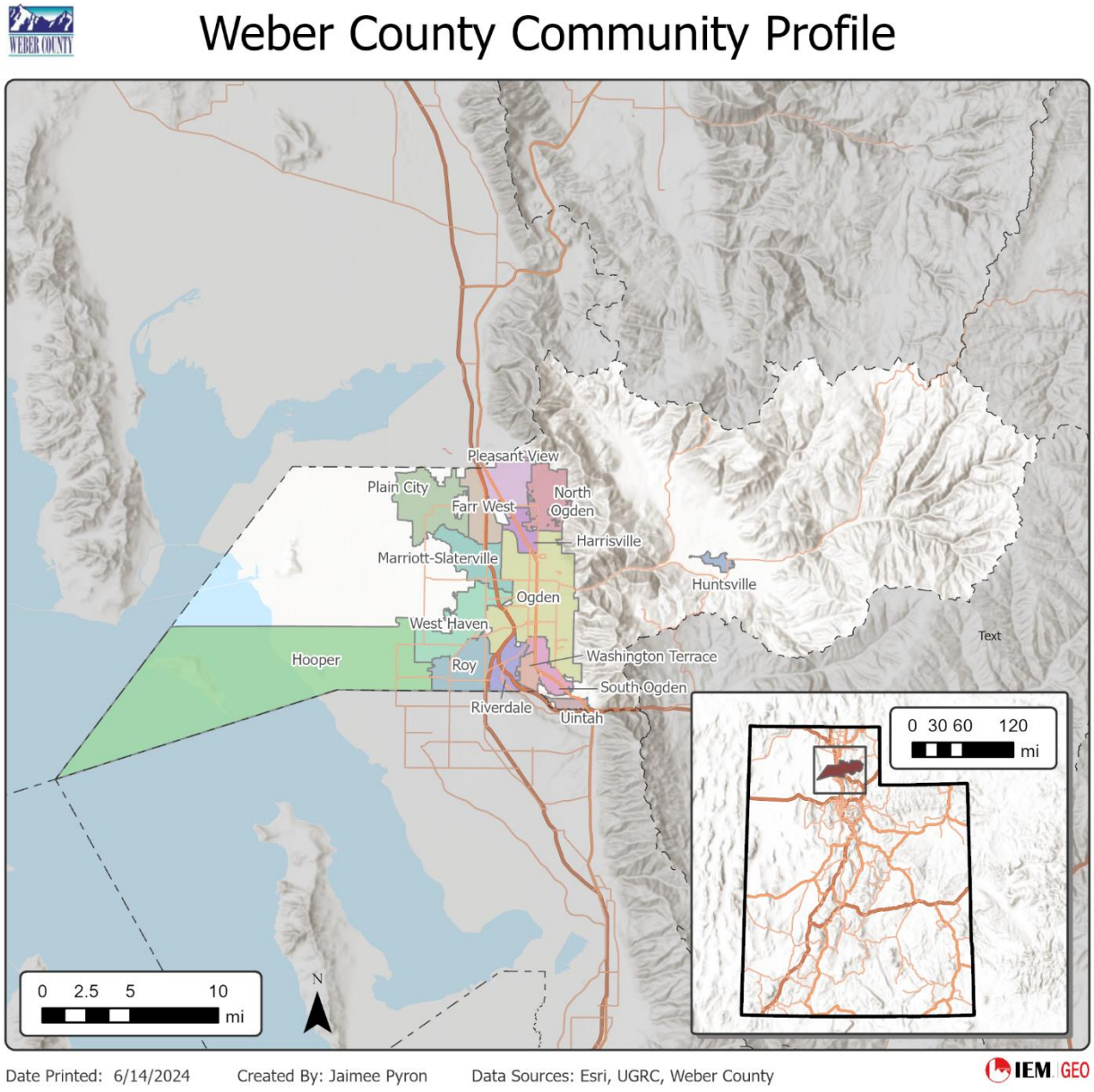


Figure 1: Location of Weber County, Utah

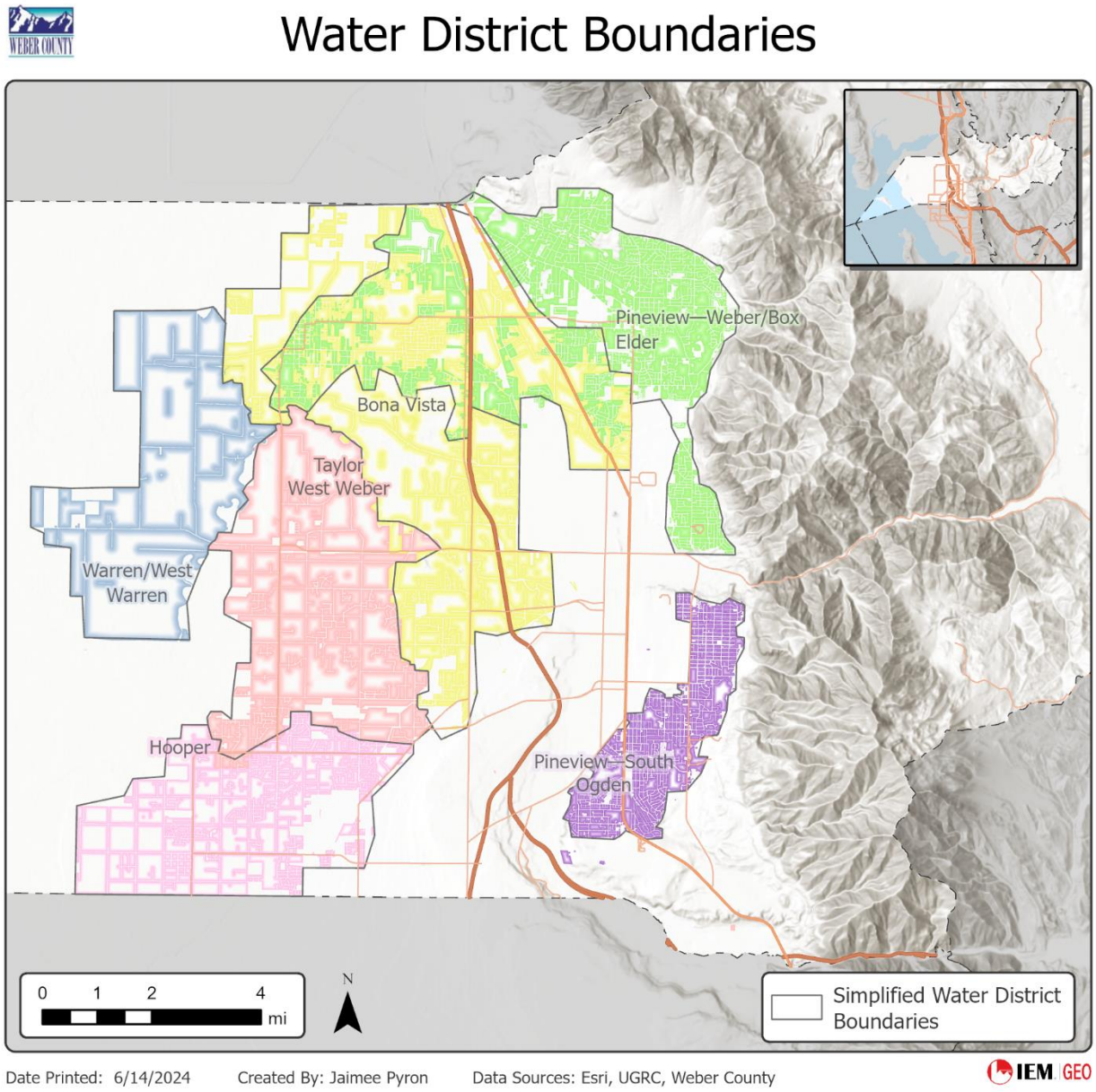


Figure 2: Detailed Water District Boundaries and Simplified Boundaries Used for Mapping Purposes

History

Nomadic Shoshone, Ute, and other prehistoric native peoples favored the area for centuries, hunting in the mountains and foothills and fishing in the streams. Mounds near the confluence of the Weber and Ogden rivers contain the remains of their camps.[1]

[1] Utah History Encyclopedia, Murray M. Moler, 1994, "Weber County." https://www.uen.org/utah_history_encyclopedia/w/WEBER_COUNTY.shtml#:~:text=Nomadic%20Shoshone%2C%20Ute%2C%20and%20prehistoric,contain%20remains%20of%20their%20camps .

Weber County, incorporated on January 31, 1850, was created by the State Legislature, and named after Trapper John Henry Weber, a fur trapper in Utah in the 1800s, seeking beavers and muskrats.[2] The Weber Valley was visited by many trappers seeking beavers and muskrats along its streams. Jim Bridger, one of the first on record to reach the area in 1824, traveled from Fort Bridger. He reported that the Bear River flowed into a salt bay. In 1826, Peter Skene Ogden, representing Hudson's Bay Company, traded for several years near present-day North Ogden. John C. Frémont explored the Weber Valley in 1843 and made maps of the area. Frémont's reports encouraged others to seek their fortunes on the western frontier. In 1845, Miles Goodyear, a fur trapper, constructed a way station on the Weber River. In 1847, he sold it to Mormon pioneers. James Brown purchased the site and changed its name to Brownsville, which was later changed to Ogden.

After Mormon pioneers began filling out the future state of Utah, the fledgling government of what was known as the State of Deseret began functioning in 1849. On January 31, 1850, the legislature created six counties in the area, named in this order:

- Weber (with Ogden as County seat)
- Great Salt Lake
- Utah
- San Pete
- Tuilla
- Little Salt Lake

The County boundaries were better defined by the 1852 Utah Territory legislature. They stretched from California to the west to Oregon on the north, to a point in the middle of Davis County in the south. These boundaries were further adjusted by acts in 1855 and 1856. In 1862, the creation of the Nevada Territory significantly reduced the County's territory, and a final adjustment in 1880 of the Great Salt Lake area brought the County's borders to their present configuration. It now occupies a stretch of the Wasatch Front, part of the eastern shores of Great Salt Lake, and much of the rugged Wasatch Mountains.[3]

Natural Environment

This section provides succinct descriptions of the County's geography, topography, and climate as a basis for understanding the conditions that could influence the impacts of natural hazards on the County.

Geography

Weber County is in the north-central part of Utah. At 662 square miles, it is the state's second smallest county in terms of land area, yet it is the fourth most populous. Great Salt Lake covers approximately 112

[2] Wikipedia, 2024, "Weber County Utah." Weber County, Utah – Wikipedia
[3] Wikipedia, 2024, "Weber County Utah." Weber County, Utah – Wikipedia

square miles of the County. Elevations range from 4200 feet at the Great Salt Lake to over 9,700 feet at Ben Lomond Peak. Figure 3 shows the watersheds in the County.

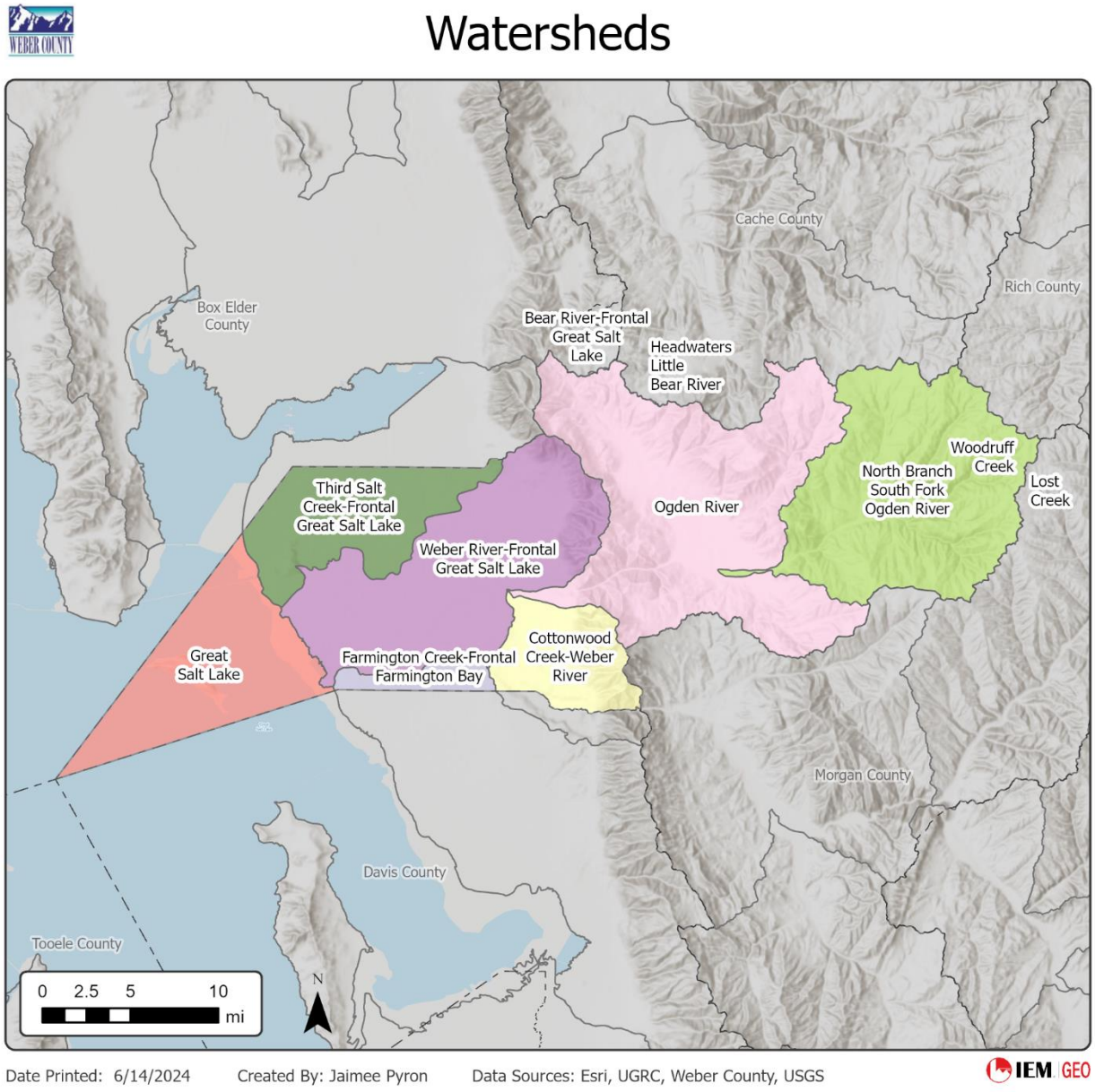


Figure 3: Weber County Watersheds

The eastern half of Weber County is a high alpine valley and the Wasatch Range segment of the Rocky Mountains, while the western portion is a flat, fertile plain formed by alluvial deposits from Lake Bonneville. The Weber River and its tributaries—the Ogden River, Coldwater Creek, Burch Creek, and several other smaller creeks—are the main river drainages, which cover approximately 2,460 square miles. The County is bordered by Box Elder County on the west, Cache and Rich Counties on the north, Morgan County on the east, and Davis County on the south.

Ogden City, the County seat and the largest city in Weber County, is approximately 26.6 square miles and sits at the base of the Wasatch Mountains, between 4,300, and 5,200 feet above sea level. Both the Ogden and Weber Rivers run through Ogden and converge just west of the city. Pineview Dam, a 110,000-acre-foot reservoir, is just east of the city limits up Ogden Canyon. A large railyard is in the middle of the city, with one line running north and another west out of the city before turning to the south. Ogden has several residential and commercial areas, two industrial parks, McKay–Dee Hospital, Weber State University, and a downtown district. Two interstate highways border the city: I-84 on the south and I-15 on the west. Ogden is a hub for the Frontrunner commuter rail and a major hub for Utah Transit Authority's bus service. Ogden also has the second largest airport in Utah, a class 1 category 3 index B, with an ILS cat 1 approach and control tower. Figure 4 shows the cities in Weber County.

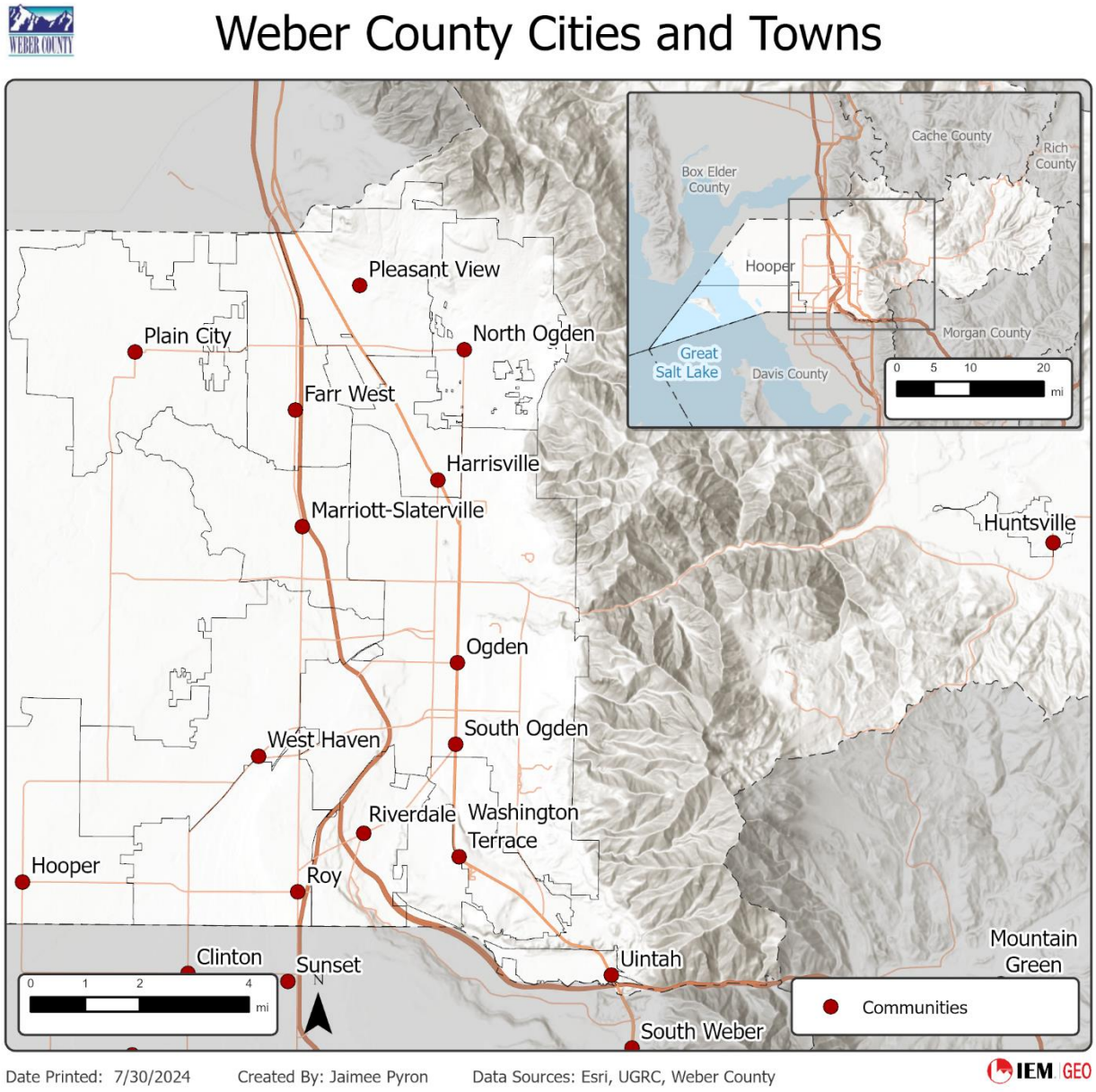


Figure 4: Cities in Weber County

Geology and Topography

Weber County is part of the Wasatch Front Region, which comprises the Wasatch, Uintah, Oquirrh, and Stansbury Mountain Ranges. The County is on the north end of the Wasatch Mountain Range, which runs north to south and is the eastern border of the valley region of the Wasatch Front.

The geology of this region is a product of Miocene Epoch faulting and folding, followed by a period of upheaval during the Tertiary Period, which raised the valley 3,000 to 5,000 feet in a dome-like manner. This disturbance of the valley floor created tension and a build-up of stress. To accommodate this change, "block-faulting" uplifted the mountain ranges and depressed the valley floor. This depression extends to the lowest portion of the Wasatch Front Region. Great Salt Lake Erosion is now the main geologic process in this area.

Weber County is characterized by diverse topography, including slopes and faults. The slopes are based on specific geographic locations. The eastern portion of the County is dominated by steep slopes and rugged terrain as it transitions into the Wasatch Mountains. These slopes offer scenic vistas and recreational opportunities but can pose challenges for construction and development due to their steepness.

Weber County is part of the Intermountain Seismic Belt, which encompasses several active faults. The most prominent fault system in the area is the Wasatch Fault, which runs along the eastern base of the Wasatch Mountains. This fault system is known for its potential seismic activity and is closely monitored by geologists and seismologists. The County also contains the Weber Fault and the Brigham City Fault. These faults indicate the region's geologic activity and the potential for earthquakes. It is important for the County to implement proper building codes and seismic regulations to mitigate the risks associated with these faults.

Soils

The Uintah and Wasatch Ranges contain mainly tertiary lake deposits, tertiary and quaternary volcanic rocks, and younger Precambrian sedimentary rocks. To the north of Salt Lake City, including the Weber County portion of the Wasatch Front, are the hardest, highly altered metamorphosed rocks of schist and gneiss, which date back about 2.6 billion years. Paleozoic marine sedimentary rocks surround the Precambrian areas of the range. Paleozoic sedimentary rocks have a very weak makeup and, in conjunction with Utah's heavy precipitation during the winter and summer, cause many landslides, avalanches, debris flows, and rockfalls.

Weber County is recognized for its U.S. Department of Agriculture prime agricultural land, which signifies the high productivity and suitability of the soil for agricultural purposes. Similarly, the Natural Resources Conservation Service measures soil quality and provides valuable information on the fertility, drainage, and erosion potential of farmlands in the County. Prime agricultural land and favorable soil quality support the growth of crops and contribute to the agricultural sector's sustainability and productivity.

The Utah Automated Geographic Reference Center (UGRC) has identified 35 active alluvial fans in Weber County (see Figure 5).[4] Alluvial fans are created when flowing water interacts with mountains, hills, or steep canyon walls. Silt, sand, gravel, boulders, and woody debris can be deposited over time by powerful rivers and small creeks. The top, or narrow point of the alluvial fan is the "apex," and the wider portion is the "apron" or "cone." Alluvial fans can be small or large, depending on historical water flows. Alluvial fans formed from a steep slope are narrow and thus more cone-shaped than fan-shaped.

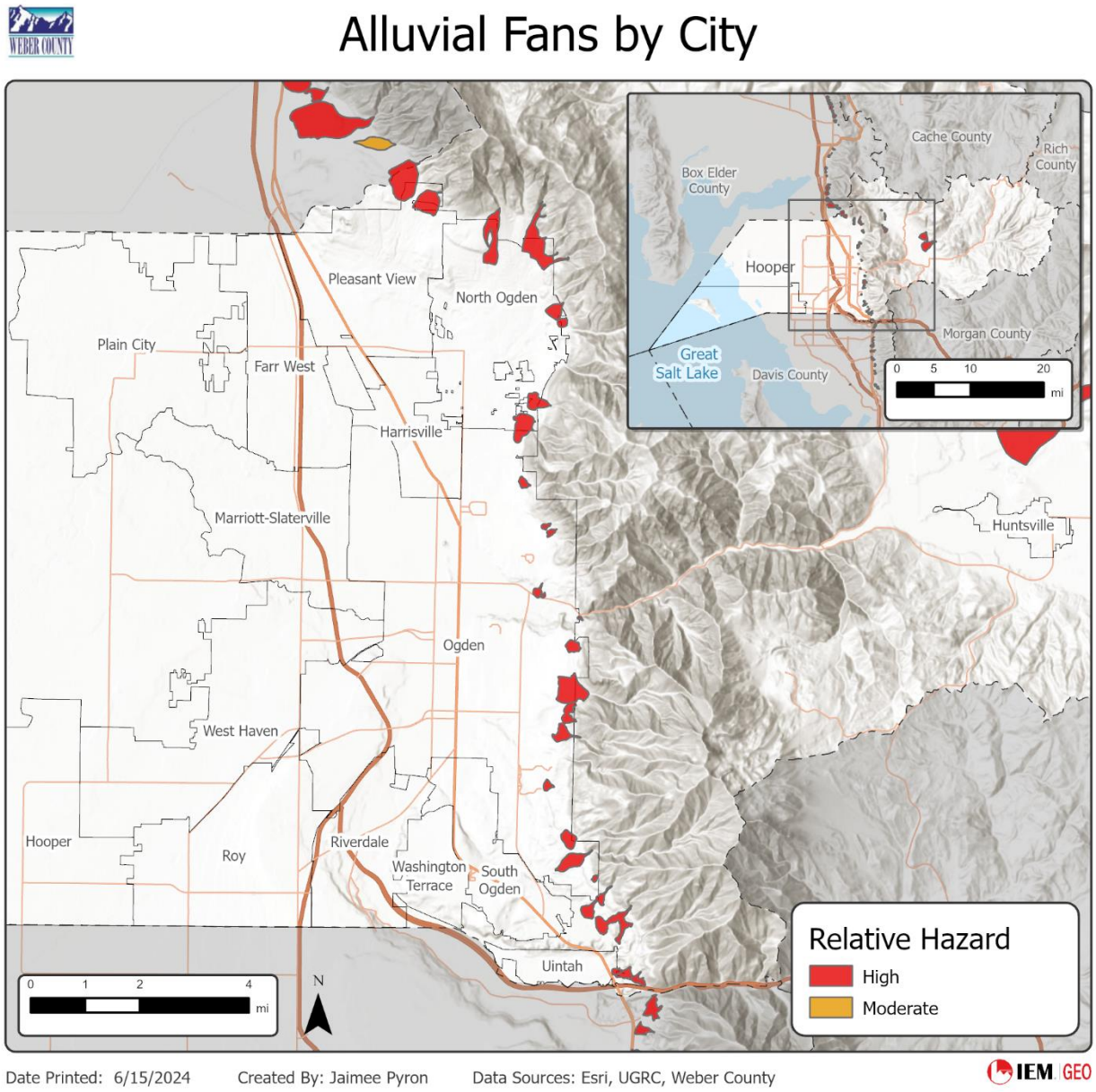


Figure 5: Weber County Alluvial Fans Map

[4] Utah Automated Geographic Reference Center, 2024, Utah Alluvial Fans | Utah's State Geographic Information Database (AGRC)

Alluvial fan landforms pose unique flooding hazards that are not present on non-fan landforms—rivers and streams whose flooding hazards are commonly defined through FEMA regulatory floodplains. According to FEMA, alluvial fan flooding occurs "on the surface of an alluvial fan or similar landform which originates at the apex and is characterized by high-velocity flows; active process of erosion, sediment transport, and deposition; and unpredictable flow paths. Alluvial fan flooding is depicted on a Flood Insurance Rate Map (FIRM) as Zone AO, with a flood depth and velocity" (FEMA 2003).[5]

Alluvial fans generally occur at a topographic apex between a mountain front and the adjacent piedmont landform. Properly identifying alluvial fan landforms is a critical first step in understanding flood risk to downstream development. Active alluvial fans are defined by location, composition, and flooding characteristics. They are composed of unconsolidated alluvium and exhibit the flooding characteristics described previously. Inactive alluvial fan landforms are geographically older and are no longer subject to active fan flooding. As they age, inactive alluvial fans develop their own internal tributary drainage networks that exhibit riverine flooding characteristics.[6]

Natural Resources

Weber County is home to several wetlands that contribute to the County's ecological diversity and serve as important habitats for wildlife. Wetlands like the Ogden Bay Wildlife Management Area on the eastern shore of the Great Salt Lake provide crucial stopover sites for migratory birds along the Pacific Flyway. These wetlands offer nesting, feeding, and resting grounds for waterfowl, shorebirds, and other avian species. The wetlands of Weber County not only contribute to the ecological health of the area but also provide opportunities for birdwatching, nature photography, and environmental education, allowing residents and visitors to appreciate the beauty and importance of these unique ecosystems.

Weber County is part of the Weber River Basin. Most of Utah's water is from snowmelt, which occurs during the spring and summer. Larger drainages or river basins are formed from mountain ravines or depressions that merge into perennial rivers and then meet, forming larger drainages.

Weber County recognizes the importance of preserving open space and has made efforts to protect and maintain its natural landscapes. The County boasts a range of open spaces, including mountains, valleys, wetlands, and wildlife habitats, which contribute to the region's scenic beauty and recreational opportunities. Preservation efforts are carried out in collaboration with various state and federal land management agencies. At the state level, the Utah Department of Natural Resources manages over 52,000 acres of land in Weber County. In addition, federal agencies, such as the U.S. Forest Service and the Bureau of Land Management, manage significant portions of land in the County, helping to preserve open spaces and wilderness areas.

[5] Utah Automated Geographic Reference Center, 2024, UGRC – Utah Alluvial Fans
[6] Ibid.

Climate

Northern Utah has a cold desert climate, with hot, dry summers and cold winters. However, Utah's climate is variable, wet in some areas of the state, and dry in others. This variability is a function of latitude, elevation, topography, and distance from sources of moisture. The Wasatch Front's climate borders a semi-arid, mid-latitude steppe climate that occurs along the perimeter of the Great Basin Desert and a humid continental climate at slightly higher elevations in the foothills of the Rocky Mountains.

Northern Utah has four seasons, low annual precipitation, convective and frontal storms, dry summers, low humidity, and large annual and diurnal temperature extremes. The Wasatch Mountain Range brings most of the precipitation to the valley. The winter months bring heavy snow accumulation over the mountains, which is favorable for winter sport activities. Spring runoff begins in March with its peak from April through June and can cause flooding along the lower streams and the upper valley. This early start is significant, as Weber County can have flooding one to two months earlier than other counties in the state. The upper valley can often experience sheet flooding around January due to rain or snow. Flash flooding from summer thunderstorms affects smaller, more localized areas in this region.

The average annual precipitation in the Wasatch Mountain Range can be more than 40 inches, while the Great Salt Lake desert averages less than 5 inches. The average annual precipitation at Salt Lake International Airport is 15.3 inches, with an average of 58.9 inches of snowfall. Utah is the second driest state in the nation.

The surrounding mountain ranges act as barriers to cold continental arctic masses. This helps insulate the area during the day and cool it rapidly at night. On clear nights, colder air accumulates on the valley floor, while the foothills and benches remain relatively warm. During the fall and winter, smoke, haze, and fog can accumulate in the lower levels of stagnant air over the valley floor and can last for several weeks. This is caused by areas of sinking air or high-pressure anticyclones settling over the Great Basin.

Average wind speeds are light to moderate, usually below 20 miles per hour. Strong winds can occur in localized areas, mainly in canyon mouths along the western slopes of the Wasatch Mountains. Dust storms can occur in the western portions of the region. Tornadoes have occurred in this region but are uncommon. Severe hailstorms also have occurred during the spring and summer months.

Climate Change

According to the 2024 Utah State Hazard Mitigation Plan (SHMP), Utah's snowpack provides an interesting case of how changes in precipitation play out in complex ways. Utah is not receiving less precipitation, but some of what used to fall as snow is now falling as rain. This effectively reduces the depth of the snowpack and how long it provides water. Continental regions far from the ocean, such as Utah, have generally warmed more than the global average. Moreover, since about 1960, northern Utah has warmed more than southern Utah. Describing past and future trends in air temperature is merely the starting point of a deeper discussion on how climate change affects hazards.

Researchers at the University of Utah have expounded on climate change in Utah. "The changing climate is changing Utah. The average temperature in Utah has increased more than 2.5°F since the beginning of the 20th century. Over the last 50 years, Utah temperatures have risen at about twice the global average. A few-degree increase might not sound like much, but a hotter climate in our region has many ripple effects. We're already experiencing trends of increasing drought, wildfires, flash floods, and extreme heat waves. Often, these ripples intersect and reinforce each other. Their impacts on our communities and our health can really add up."[7]

Figure 6 illustrates the effects of higher temperatures on Utah's climate, and potential consequences. It can be easy to overlook the many ways in which health is connected to Utah's climate. As temperatures in Utah rise, more dangerous heat waves are anticipated. A warmer climate also causes a cascade of changes that worsen air and water quality, damage homes and infrastructure, and create favorable conditions for new diseases. These challenges are particularly difficult for people with chronic health conditions, and they can stress mental well-being. Every bit of warming prevented will be better for overall health.[8]

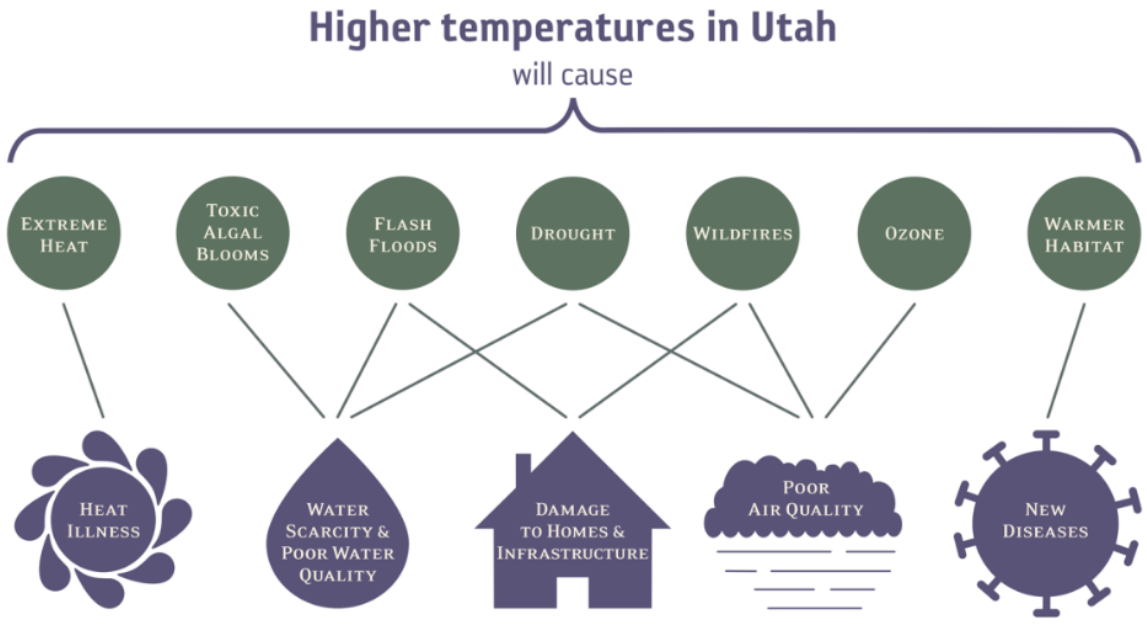


Figure 6: The Effects of Higher Temperatures in Utah[9]

Climate adaptation and hazard mitigation share the common goal of minimizing impacts from natural hazards that are expected to increase in frequency and intensity due to climate change. Climate adaptation is especially concerned with adjusting to future conditions and building resilience to withstand those changes. As the future climate is variable and may present new challenges, climate adaptation uses scenarios to help plan for uncertainty. Adaptation also continues over time, responding to new information

[7] Natural History Museum of Utah, University of Utah Rio Tinto Center, 2024, Understanding Climate Change in Utah | Natural History Museum of Utah

[8] Natural History Museum of Utah, University of Utah Rio Tinto Center, 2024, "Effects of Higher Temperatures in Utah" Understanding Climate Change in Utah | Natural History Museum of Utah

[9] Natural History Museum of Utah, University of Utah Rio Tinto Center, 2024, "Effects of Higher Temperatures in Utah" Understanding Climate Change in Utah | Natural History Museum of Utah

or climate conditions. Successful climate adaptation can vary depending on the scope of the action but often includes changes in processes, behaviors, and infrastructure. Adaptations can shorten recovery by building communities that are more resilient to current and future hazards. Hazard mitigation and climate adaptation are essential because the effects of climate change are happening now and are expected to worsen.[10] As Figure 7 indicates how, by adding climate adaptation planning, emergency managers can help promote climate resiliency across plans while supporting underserved populations and the whole community.

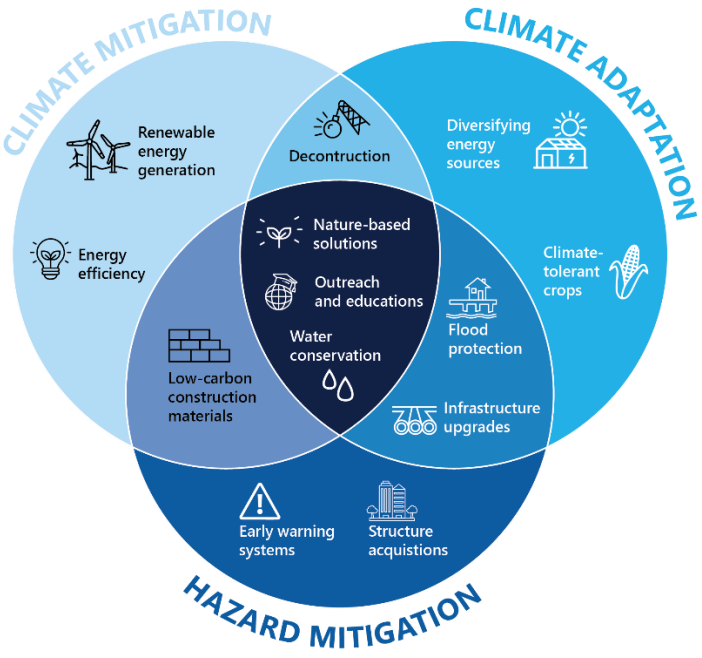


Figure 7: Overlaps between Climate Mitigation, Hazard Mitigation, and Climate Adaptation

Built Environment

This section elucidates the current land use and development trends in Weber County. This information will help guide and coordinate future mitigation activities and decisions related to local land use policy. It is noteworthy that Western Weber County revised its General Plan (GP) in August 2022, which classifies land uses in unincorporated areas of the County.

Land Use

Weber County is blessed with natural landscapes, including mountains, rivers, and open spaces, that contribute to its aesthetic appeal and quality of life. Preserving these natural resources while pursuing development poses a challenge. Balancing the need for growth with responsible environmental stewardship,

[10] FEMA Climate Adaption Planning Guidance for Emergency Managers, 2024, Climate Adaptation Planning: Guidance for Emergency Managers (fema.gov)

including land conservation, sustainable building practices, and the protection of sensitive habitats, will be critical for maintaining the County's unique character and natural heritage.

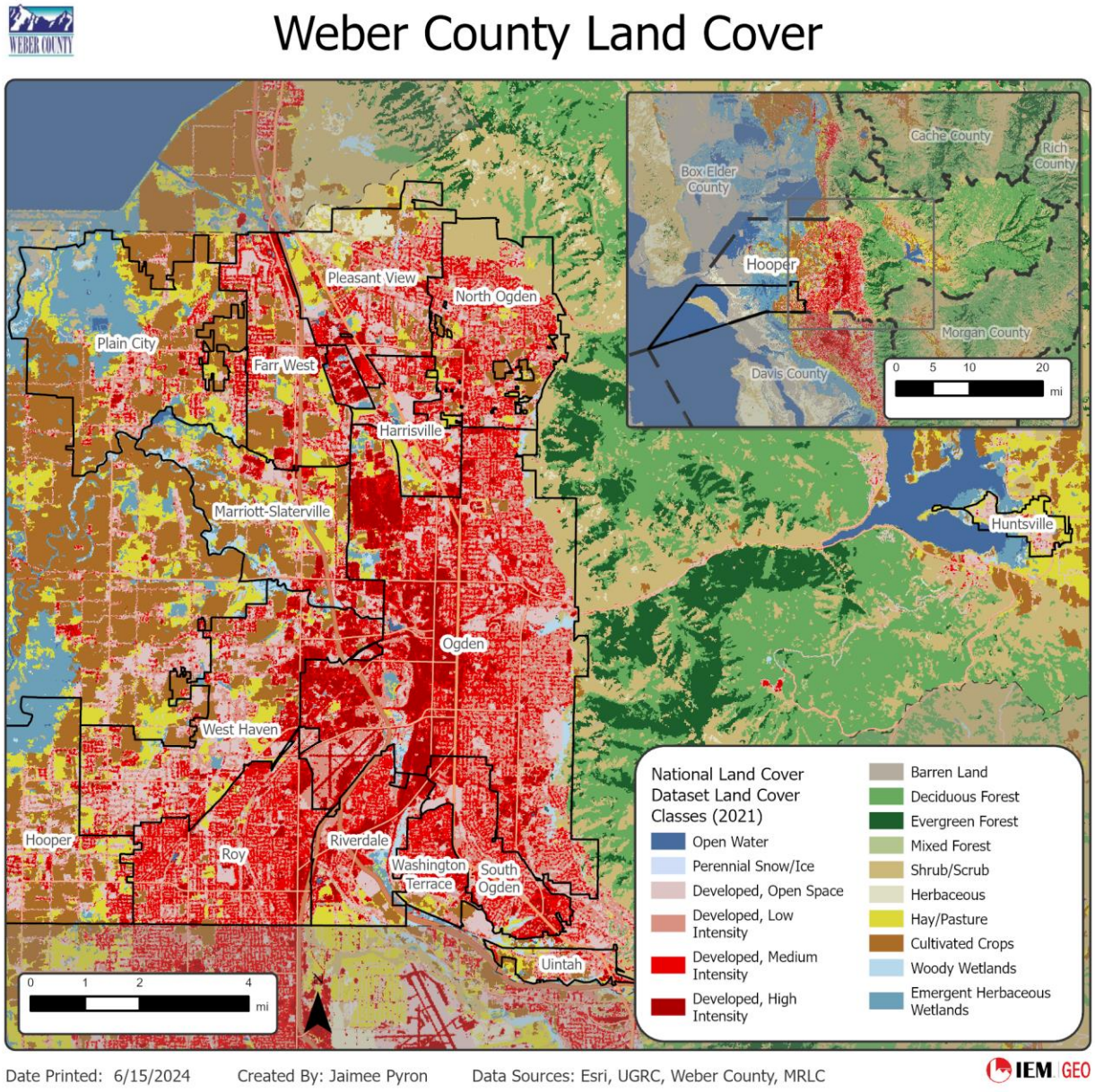


Figure 8: Weber County Land Cover

Agricultural land has declined rapidly over the past two decades. The 2022 Western Weber County GP accounted for the 2003 West Central Weber County General Plan. In 2002, there were approximately 28,116 acres under agricultural use in the contiguous area west of the Wasatch Front. According to data retrieved from the Weber County Assessor's Office in 2022, current agricultural land use covers approximately 19,497 acres. This amounts to a loss of 8,619 agricultural acres in two decades, which is approximately 30.5% of the total agricultural acreage. Part of the loss of agricultural acreage can be attributed to the

annexation of land into adjacent cities, and another part can be attributed to the conversion of agricultural land to residential lots (see Table 1 and Table 2).[11]

Table 1: Changes in Land Use in Unincorporated Western Weber County, 2002–2022[12]

Use	Use in 2002 (Acres)	Use in 2022 (Acres)	20-Year Percent Change
Agriculture	28,493	19,497	-31%
Residential	2,839	4,693	65%
Commercial	3	6	100%
Manufacturing	1,337	1,412	6%
Shoreline/Lakebed	29,896	29,896	0%

Note: Table excludes Uintah Highlands and unincorporated lands.

Table 2: Acreage by Zone and Actual Use in Unincorporated Western Weber County[13]

Use	Acreage Zoned for Use, 2022	Actual Acreage Used, 2022
Agriculture	28,493	19,497
Residential	0	4,693
Commercial	45	6
Manufacturing	8,885	1,412
Shoreline/Lakebed	29,896	29,896
Undeveloped and Non-Greenbelt	NA	11,815
Total Acreage	67,319	67,319

Note: Table excludes Uintah Highlands and unincorporated land.

Critical Facilities, Infrastructure, and Community Assets

The County maintains the highest level of building standards and focuses much attention on infrastructure development. The goal of providing a safe community for residents drives it to continually be engaged in and planning for additional critical and essential infrastructure projects. At the time of construction, all County buildings were designed under current building, fire, and seismic codes.

[11] West Weber Planning Area General Plan, 2022, "Agricultural Land Uses" 1-final-western-weber-gp.pdf (webercountyutah.gov)
[12] West Weber Planning Area General Plan, 2022, "Unincorporated Western Weber County Land Use Acreage Changes 2002 to 2022" 1-final-western-weber-gp.pdf (webercountyutah.gov)
[13] West Weber Planning Area General Plan, 2022, "Unincorporated Western Weber County Acreage by Zone and Actual Use" 1-final-western-weber-gp.pdf (webercountyutah.gov)

Table 3: Number of Facilities Per Plan Participant

Jurisdiction	Essential Facilities	Transportation	Utilities	Total
Farr West	4	8	0	12
Harrisville	4	2	0	6
Hooper	2	1	0	3
Huntsville	1	0	0	1
Marriott–Slaterville	5	22	1	28
North Ogden	8	0	0	8
Ogden	58	36	4	98
Plain City	3	0	1	4
Pleasant View	6	2	0	8
Riverdale	5	15	0	20
Roy	13	9	0	22
South Ogden	12	0	0	12
Uintah	1	2	0	3
Washington Terrace	9	0	0	9
West Haven	6	12	0	18
Unincorporated	10	57	3	70
Total	147	166	9	322

Table 4: Number of Facilities per School District Participant

Jurisdiction	Essential Facilities	Transportation	Utilities	Total
Weber School District	86	134	5	225
Ogden School District	61	32	4	97
Total	147	166	9	322

Table 5: Number of Facilities per Water District Participant

Jurisdiction	Essential Facilities	Transportation	Utilities	Total*
Bona Vista	15	12	1	28
Hooper	7	0	0	7
Pineview—South Ogden	21	0	0	21

Jurisdiction	Essential Facilities	Transportation	Utilities	Total*
Pineview—Weber Box Elder	19	0	0	19
Taylor West Weber	3	0	0	3
Warren—West Warren	0	4	1	5
Outside Water District Boundaries	88	150	7	245
Total*	153	166	9	328

**Note*: Totals are greater than the actual facility count, as water district boundaries are overlapping and individual facilities may be double counted when they lie in both boundaries

Table 6: Number of Facilities per Sewer District Participant

Jurisdiction	Essential Facilities	Transportation	Utilities	Total
Central Weber Sewer	115	21	2	138
Outside Sewer District Boundary	32	145	7	184
Total	147	166	9	322

Table 7: Number of Facilities per Fire District Participant

Jurisdiction	Essential Facilities	Transportation	Utilities	Total
North View Fire District	18	4	0	22
Weber Fire District	26	99	4	129
Outside Fire District Boundaries	103	63	5	171
Total	147	166	9	322

Development Trends

RESIDENTIAL DEVELOPMENT

The 2022 Western Weber County GP incorporates the 2003 West Central Weber County GP, which estimated there were 1,318 dwelling units in 2002. County Assessor data for 2022 show that this number has

increased by 30% in the past two decades to 1,719. Moreover, there were more than 200 vacant residential lots on record, most of which were recorded in the previous five years. Some vacant lots are ready to be built on, while others are in some stage of subdivision development and will soon be available for building. Regardless, development pressures continue to mount because the supply of lots that can be developed is not sufficient to meet the housing needs of the growing population (see Figure 9, Figure 10, and Table 8).

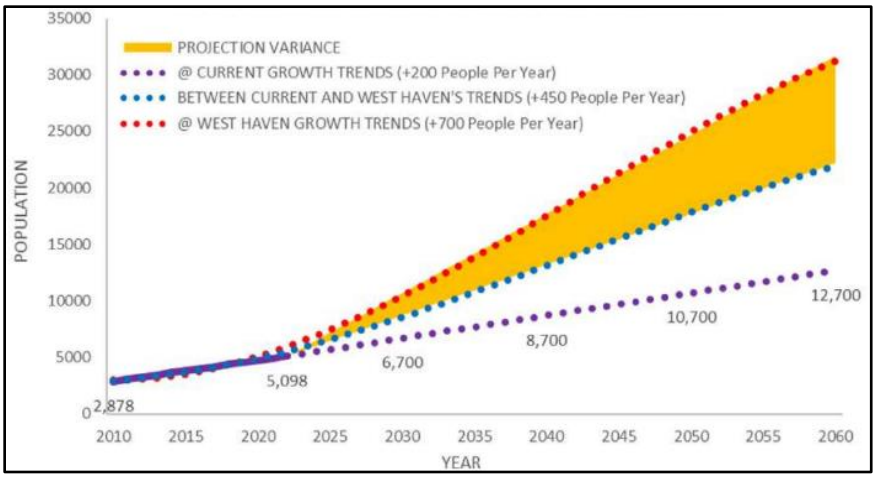


Figure 9: West-Central Weber Population Projections[14]

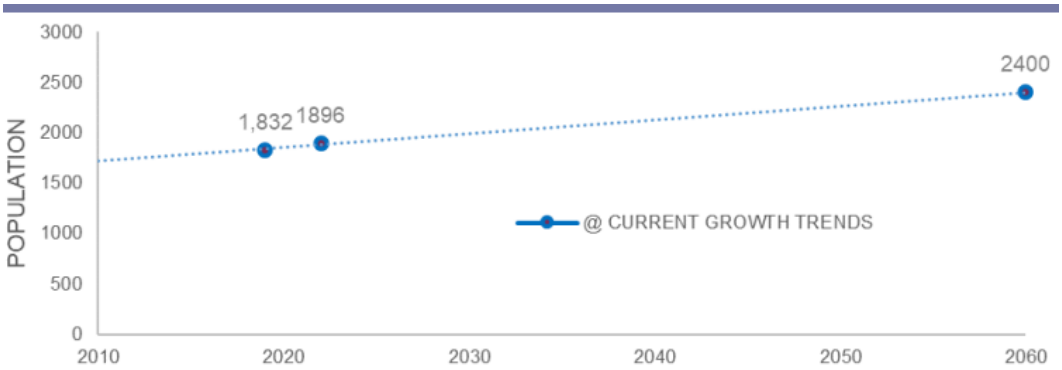


Figure 10: Population Projection for Uintah Highlands[15]

[14] West Weber Planning Area General Plan, 2022, "West-Central Weber Population Projections" 1-final-western-weber-gp.pdf (webercountyutah.gov)

[15] West Weber Planning Area General Plan, 2022, "Uintah Highlands Population Projections" 1-final-western-weber-gp.pdf (webercountyutah.gov)

Table 8: Change in Residential Units in Unincorporated Western Weber County, 2002–2022[16]

	2002 Count	2022 Count	20-Year Percent Change
Dwelling Units	1,318	1,696	28.7%

Note: Table excludes Uintah Highlands and unincorporated lands.

Most of the 4,693 acres held in residential land use are large residential lots of a half-acre or more. In West Central Weber County, most lots cover at least one acre, while in the Uintah Highlands, most large lots are one-half acre or more. These lots have their place in the Western Weber Planning Area.

When reviewing the future land use map, the biggest proposed change is in West Central Weber County, where medium to large residential lots are proposed. Most of the Uintah Highlands have been developed as 15,000-square-foot lots. The same or a similar development pattern should be expected for all areas with medium to large residential lot designations.[17]

CLUSTERED DEVELOPMENT

The current cluster subdivision code was adopted in 2017. Only two subdivisions have been approved in Western Weber County under this development pattern. They provide significant agricultural open space, which was the leading legislative goal when the cluster code was adopted. Both subdivisions have farmers who will continue to farm the land.[18]

MIXED-USE COMMERCIAL DEVELOPMENT

The areas designated as mixed-use commercial land use are intended to provide a village center in which a variety of applications can occur. As of 2023, there were no mixed-use commercial uses in the planning area. The closest adjacent mixed-use commercial area comparable to that anticipated here is in the Junction Development or on 25th Street in Downtown Ogden City. However, it is unlikely that the mixed-use areas displayed on the future land use map will be on the same scale as Ogden's downtown area. In each mixed-use area, there should be at least one community "main street," which should provide retail sales, services, eateries, and related activities that make the street interesting to use. These uses should be located behind building facades that are at the level of the street and directly adjacent to the street's sidewalk, with plenty of windows and doors facing the street to capture the attention and interests of pedestrians as they engage their public spaces, browse, shop, eat, and play.[19]

[16] West Weber Planning Area General Plan, 2022, "Unincorporated Western Weber Residential Unit Change 2002-2022" 1-final-western-weber-gp.pdf (webercountyutah.gov)
[17] West Weber Planning Area General Plan, 2022, 1-final-western-weber-gp.pdf (webercountyutah.gov)
[18] West Weber Planning Area General Plan, 2022, 1-final-western-weber-gp.pdf (webercountyutah.gov)
[19] West Weber Planning Area General Plan, 2022, "Land Use" 1-final-western-weber-gp.pdf (webercountyutah.gov)

HEAVY COMMERCIAL DEVELOPMENT

Areas designated for heavy commercial land use are intended to accommodate intense commercial uses as the land transitions westward into industrial and manufacturing activities. Heavy commercial uses are more intrusive than typical vehicle-oriented or pedestrian-oriented retail uses. They include sales and services of and for heavy machinery, contractor and construction equipment, semi-industrial uses of a smaller scale or impact than typical industrial uses and uses with retail or wholesale sales that are frequented by specialty customers rather than the typical public retail customer or that conduct sales primarily through shipping or freight services.

The Weber County Economic Development Department is committed to augmenting the quality of life of all Weber County citizens. With a bottom-up holistic approach to economic development rooted in a commitment to leverage community assets, the County seeks to tackle economic issues while creating unique and valuable development opportunities through many state and regional partnerships and collaborations. One example is the West Weber Industrial District and Renewable Energy Hub, the next frontier for advanced manufacturing and clean energy development. This 6000-plus acre master planned site is uniquely positioned to become one of the Western United States' largest industrial districts and renewable energy hubs.

Demographics

Population

Weber County is the 4th largest county in Utah. Per the 2022 United States Census, there were 262,960 people, 100,984 households, and 87,802 families in **Weber County (including unincorporated areas).** In 2024, it is estimated that Weber County's population is 274,392, reflecting a growth rate of 0.91% in the past year and 18.2% since 2010, when it had a population of 232,136 (see Figure 11).[20]

[20] World Populations Review, Weber County UT, 2024, Weber County, Utah Population 2024 (worldpopulationreview.com)

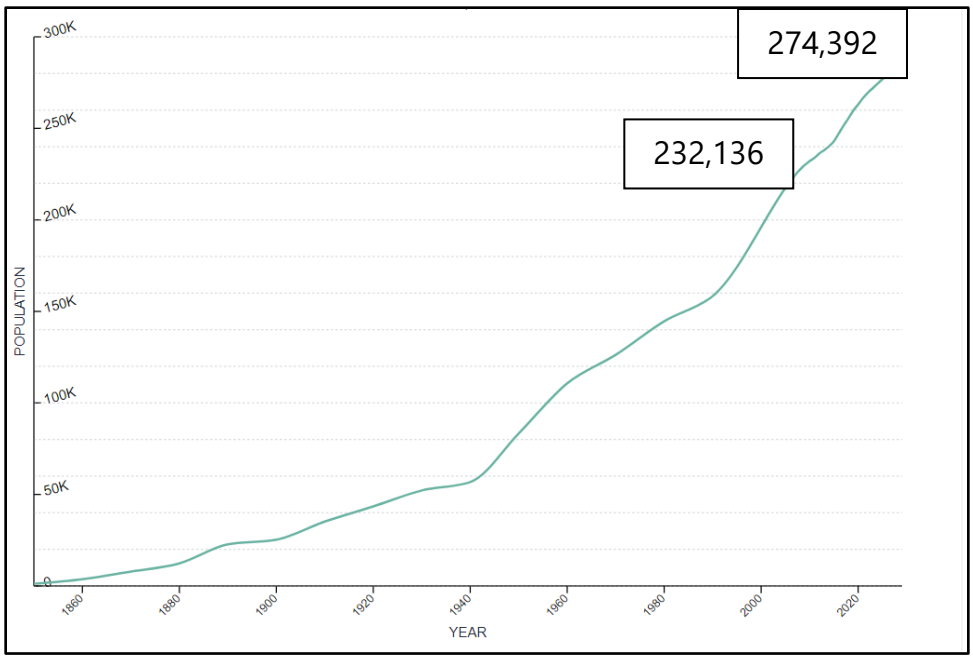


Figure 11: Population Growth in Weber County, Utah, 1860–2024[21]

Table 9 breaks out the County's population by municipality.

Table 9: Weber County Population by City[22]

Municipality	Population (2016 Plan)	Population (2022 Census)
Farr City	6,140	8,027
Harrisville	5,915	6,876
Hooper	7,957	9,300
Huntsville	619	593
Marriott–Slaterville	1,737	2,206
North Ogden	18,019	21,855
Ogden	84,249	86,825
Plain City	6,049	8,321
Pleasant View	8,571	11,258
Riverdale	8,560	9,285
Roy	37,773	38,785
South Ogden	16,789	17,716
Uintah City	1.327	1,422

[21] World Populations Review, Weber County UT, 2024, Weber County, Utah Population 2024 (worldpopulationreview.com)

[22] US Census Bureau, 2024, Weber County, Utah – Census Bureau Profile

Municipality	Population (2016 Plan)	Population (2022 Census)
Washington Terrace	9,164	9,160
West Haven	11,248	22,235
Unincorporated	17,720	9,096
Total	240,475	262,960

In 2021, the racial makeup of **Weber County (including unincorporated areas**) was 75.4.0% White (non-Hispanic), White (Hispanic) 10.5%, Other (Hispanic) 4.64%,1.8% Black or African American, 1.4% Native American, 1.7% Asian, 0.4% Native Hawaiian or Pacific Islander, and 2.8% from two or more races[23] . Of the population, 18.8% were Hispanic or Latino of any race (Figure 12), and in 14.2% of households, a language other than English was primarily used at home. People under the age of 18 made up 27.1% of the population, and 12.1% were 65 years old or older. The average household size was 2.92 persons. In 2021, the median age of the population was 33.1 years.[24] This does not consider the potential multilingual nature of households but only the primary self-reported language spoken by all members of the household.[25]

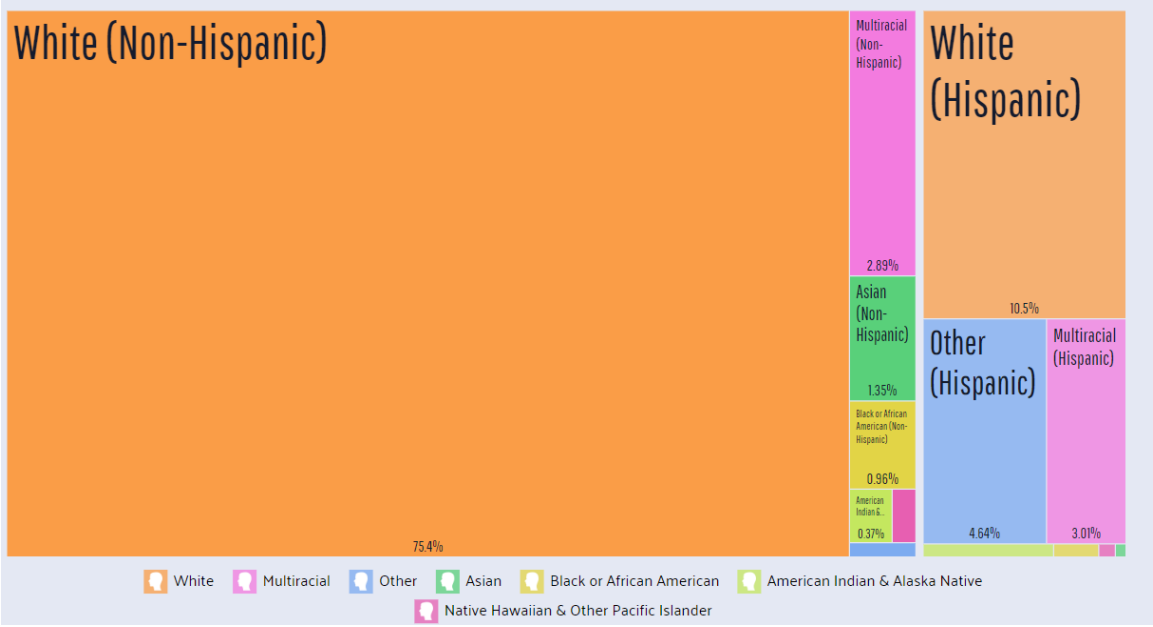


Figure 12: Race and Ethnicity in Weber County[26]

[23] Data USA, Weber County UT, 2024, Weber County, UT | Data USA
[24] Ibid.
[25] Ibid.
[26] Data USA, Weber County UT, 2024, "Weber County Race and Ethnicity Infographic." https://datausa.io/profile/geo/weber-county-ut/

Disadvantaged Communities and Vulnerable Populations

FEMA defines social vulnerability as the susceptibility of social groups to the adverse impacts of natural hazards, including disproportionate death, injury, loss, or disruption of livelihood. Social vulnerability affects a community's capacity to prepare for, respond to, and recover from hazard events. That is to say, groups with higher social vulnerability experience the same hazard event differently than groups with lower social vulnerability.

Social vulnerability often refers to characteristics that have historically made certain groups of people more or less at risk when they are exposed to the impacts of a hazard event. Common and determining characteristics include age, gender, income, race, ethnicity, and language capacity. However, additional characteristics can include social networks, education, cultural knowledge, and political power. Social vulnerability considerations were included in this Plan update to identify areas in the County that might be more vulnerable to hazard impacts based on a number of factors.

The National Risk Index (NRI) includes data on the expected annual losses to individual natural hazards, historical loss, and overall risk **at the county and census tract levels**. Figure 13 illustrates Weber County's National Risk Index. This is calculated by multiplying the expected annual loss by the social vulnerability score and dividing the result by the community resilience score. Weber County's Risk Index level is Relatively Moderate.



Figure 13: Weber County National Risk Index Weber County Map and Legend[27]

Figure 14 shows that the NRI score for Weber County was 94.21, and Figure 15 shows how Weber County compares with the rest of the United States in terms of expected annual loss, social vulnerability, and community resilience.

[27] FEMA, National Risk Index, "Weber County National Risk Index, Map and Legend." Map | National Risk Index (fema.gov)

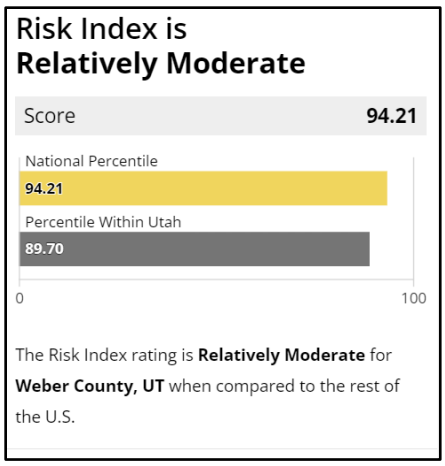


Figure 14: National Risk Index Score, Weber County, Utah[28]

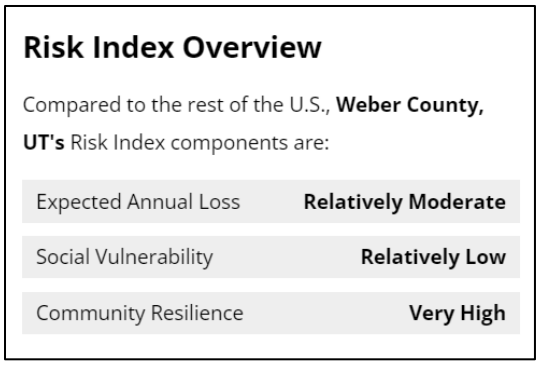


Figure 15: National Risk Index Overview, Weber County, Utah[29]

The Plan recognizes the hazards identified will affect all persons living in Weber County. However, traditionally underserved populations are more likely to face hardships and difficulties when faced with the impacts of a disaster. Each participating jurisdiction crafted a list of vulnerable populations in its community and considered how to assist them equitably throughout the disaster cycle.

In **Farr City,** populations may include low-income individuals and families, seniors, persons with disabilities, and others who may face socioeconomic challenges. Local government agencies, community organizations, and nonprofits often provide support and resources to address the needs of vulnerable populations.

In **Harrisville City**, vulnerable groups comprise a diverse range of individuals who may face particular challenges in times of disaster. This includes the elderly, people with disabilities, low-income families, non-English speakers, and those with limited access to transportation. These groups may require additional assistance and tailored support to prepare for emergencies and respond to them effectively. Addressing the needs of these vulnerable populations in disaster planning and response efforts is crucial to ensuring the safety and resilience of the community as a whole.

Disasters in **Hooper City** have a significant impact on vulnerable populations in the community. Vulnerable populations include low-income households, elderly residents, children, individuals with disabilities, and those without access to reliable transportation. During disasters, these populations often face unique challenges and are more susceptible to the adverse effects of hazard events. Limited financial resources may hinder their ability to evacuate or adequately prepare for emergencies, exacerbating their vulnerability. In addition, elderly residents and individuals with disabilities may require specialized assistance and accessible resources during evacuation and recovery efforts. Children, particularly those from low-income households, may experience disruptions in education, access to healthcare, and overall well-being.

[28] FEMA, National Risk Index, "Weber County National Risk Index Score." Map | National Risk Index (fema.gov)

[29] FEMA, National Risk Index, "Weber County UT, Nation Risk Index Overview." Map | National Risk Index (fema.gov)

Therefore, it is crucial for emergency management agencies and community organizations to implement targeted strategies and support systems that address the specific needs of vulnerable populations in Hooper City, Utah, during and after disasters.

Huntsville Town is a small rural community with 218 households. The racial and ethnic makeup of Huntsville Town is largely White Alone, with only about 12.6% of the population being Asian, African American, Hispanic, or two or more races. Only about 4% of the community members speaks a language other than English at home.

Marriott–Slaterville is a community of 2,206 residents, with 638 households per the 2022 census. Of these, 7.1% of the population was considered to be living in poverty, and 25.2% were under the age of 18. The population was mostly white alone, with just 33% of residents identifying as another race or ethnicity.

In **North Ogden City**, several groups may require special assistance during a disaster due to their unique needs and vulnerabilities. These groups include elderly individuals, people with disabilities, children, low-income families, non-English speakers, pregnant women, single-parent households, homeless individuals, pet owners, tourists, and visitors.

According to the US Census Bureau, the population of **Ogden** was 86,825 in 2022, and ethnic and racial minorities make up over 20% of its population. The largest minority group was Hispanic, followed by African Americans, Asians, American Indian/Alaska Native, and Native Hawaiian or other Pacific Islander.

As of the 2022 U.S. Census, **Plain City** had an estimated population of 8,321 residents. Its population is primarily composed of White individuals, accounting for 94.15% of the community. This was followed by those of two or more races (3.29%), Native Americans (0.78%), and Asians (0.2%). Vulnerable populations can be identified based on language barriers, as 3.11% of residents speak languages other than English, with Spanish being the most commonly spoken non-English language.

From an economic perspective, the White population had a poverty rate of 7.05%, reflecting economic disparities in the community, and it had a relatively low unemployment rate of 2.3%. Of its residents, 92.95% were born in the United States, while 1.09% were not US citizens. The largest percentage of non-US citizens were from Latin America. The poverty rate for those working full-time for the previous 12 months was 0.4%, compared with 6.19% for part-time workers and 9.24% for those who did not work.

Addressing the unique needs of Plain City's diverse population is essential for effective disaster mitigation. Strategies that consider language access, education disparities, and economic challenges can be tailored to the specific vulnerabilities identified in the community. Vulnerable populations can be identified based on language barriers, as 3.11% of residents speak languages other than English, with Spanish being the most commonly spoken non-English language.

As of the 2022 U.S. Census, **Pleasant View City** had an estimated population of approximately 11,258 residents. Vulnerable populations encompass various groups that may face unique challenges during disasters. These include the elderly, individuals with disabilities, low-income families, non-English speakers, and those without access to reliable transportation. Due to the City's topography, these vulnerable

populations might be disproportionately affected by disasters. Steep slopes and hilly terrain could hinder the mobility of the elderly and people with disabilities, making evacuation more difficult. In addition, low-income families might lack the resources to evacuate quickly or access necessary emergency supplies. Language barriers could exacerbate the challenges faced by non-English speakers in understanding evacuation instructions and crucial information. Addressing the specific needs of these vulnerable groups is essential to ensure their safety and well-being during disasters in Pleasant View City.

The unique geography of Pleasant View City can disproportionately affect vulnerable populations during certain types of disasters. For instance, heavy rainfall could lead to an increased risk of landslides in areas with steep slopes, impacting those who live in these regions. Similarly, flash flooding might be more dangerous for individuals with limited access to transportation because roadways could become impassable quickly. In the aftermath of a disaster, the elderly and individuals with disabilities may face challenges accessing emergency shelters or medical assistance, particularly if these facilities are in areas with difficult terrain. To enhance the City's overall disaster preparedness, strategies must be implemented that cater to the specific needs of these vulnerable groups, considering the potential impact of Pleasant View City's geographical features on their safety and well-being.

As of the 2022 U.S. Census, **Riverdale City** had an estimated population of approximately 9,285 residents, including several types of vulnerable populations, each with unique needs that must be considered in disaster planning and response. These groups can be disproportionately affected by disasters because of their specific challenges and circumstances. Some of the vulnerable are elderly individuals, people with disabilities, low-income families, non-English speakers, children, homeless individuals, veterans, and new immigrants.

In Riverdale City, it is the goal of emergency management and public safety officials to take proactive measures to address the needs of vulnerable populations by incorporating their considerations into disaster planning, resource allocation, and community outreach. Collaborating with community-based organizations, providing accessible information, and ensuring that emergency responders are trained to cater to diverse needs will help enhance the overall resilience of the City.

Accommodations that the Emergency Management Agency in Riverdale City can consider for these vulnerable populations include accessible information and communication, specialized transportation, community outreach and education, crisis shelter accommodations, financial assistance programs, an inclusive emergency planning committee, crisis counseling services, collaboration with local organizations, and partnerships with local nonprofits, faith-based organizations, and community groups that can play a vital role in reaching and supporting vulnerable populations. These accommodations should be part of a comprehensive and inclusive emergency management Plan. It is essential to involve affected communities in the planning process to ensure that strategies are culturally sensitive and meet the specific needs of residents.

As of the 2022 US Census, **Roy City** had a population of 38,785, showing a minor decline of -1.3% from April 2020. Demographically, the City exhibited diversity, with 83.7% identifying as White alone and 19.7% as Hispanic or Latino. Of individuals under 65 years of age, 7.1% lack health insurance, and 8.7% have a disability. Vulnerable populations include 10.9% who are 65 years old and older, 7.7% under 5 years old,

and 28.5% under 18 years old. Foreign-born individuals make up 5.7% of the population. Roy City believes that ensuring the safety of these diverse groups in disaster scenarios is crucial, with actions such as inclusive communication strategies, accessible transportation, and tailored evacuation plans of paramount importance.

As of the 2024 US Census, **South Ogden** had a population of 17,739, an increase of 1.39% since 2020. The community features a diverse age range, with a median age in the mid-30s, and is predominantly White, though the Hispanic population is growing. Households average about 2.5 people, reflecting a mix of families and individuals. The housing market includes single-family homes, townhomes, and apartments, with a relatively high rate of homeownership. The average household income is $107,241, with a poverty rate of 7.65%. The local economy is diversified, providing jobs in healthcare, education, retail, and services. Education is a priority in the community, with many residents holding college degrees supported by several local school districts.

As of the 2022 census, the population of **Uintah** stood at 1,422. Vulnerable populations there are more likely to be adversely affected by disasters due to factors such as socioeconomic status, age, disability, or cultural considerations. Increasing disaster resilience in Uintah requires targeted efforts to support these populations. Vulnerable populations include low-income residents, the elderly, people with disabilities, racial and ethnic minorities, children and youth, and Native Americans. Community-wide initiatives include early warning systems, community networks, and neighborhood watch programs.

As of the 2022 census, the population of **Washington Terrace** was 9,160, including several at-risk groups during disasters. It is essential for the local government to provide support and assistance to ensure their safety and well-being. The at-risk groups include low-income residents, elderly people, people with disabilities, children, racial and ethnic minorities, and Native Americans.

As of the 2022 Census, the population of **West Haven City** was 22,395, including several vulnerable populations. Their unique needs must be considered in disaster planning and response. The vulnerability of the elderly includes mobility issues, chronic health conditions, and social isolation. Low-income communities have limited financial resources, which may hinder preparedness measures and access to essential services during and after disasters. People with disabilities face barriers in accessing evacuation routes, emergency shelters, and communication channels. Immigrant and refugee communities are likely to have language barriers, cultural differences, and limited knowledge of local resources, which may hinder disaster preparedness.

Unincorporated areas of Weber County include vulnerable populations such as the elderly and people who speak a language other than English.

Population Trends

According to the 2024 Utah SHMP, Utah is one of the most urbanized and fastest-growing states in the nation. By 2060, Utah is projected to add over two million people to its population. Just five counties (Davis, Salt Lake, Utah, Washington, and Weber) will account for 83% of this population growth. Weber

County's population grew in all 12 years between 2010 and 2022, with the largest increase—1.7%—between 2016 and 2017. Between 2010 and 2022, the County grew by 1.3% per year (Figure 16).[30]

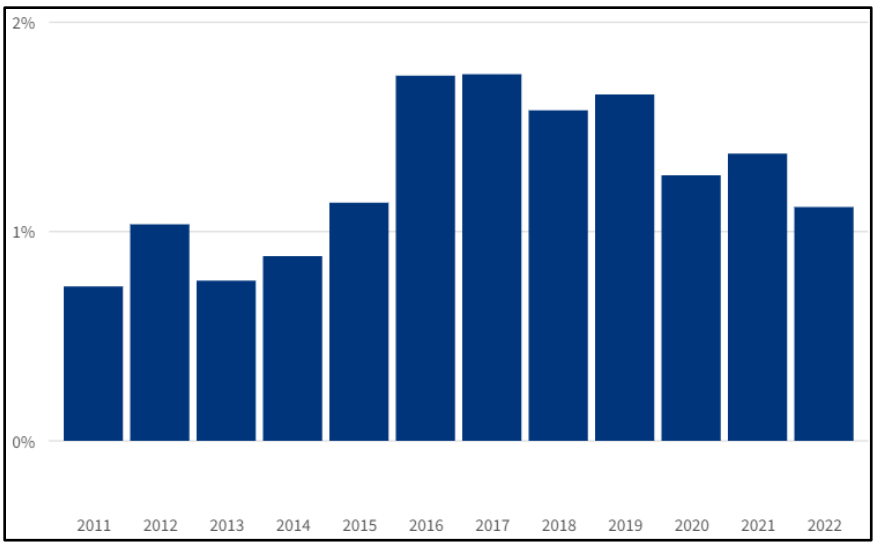


Figure 16: Annual Population Change, Weber County, UT, 2011–2022 [31]

Figure 17 shows population pyramids for Weber County, which group the populace by age and sex (female in blue and male in green). A wider pyramid base means that the population is younger, while a wider top means the population is older.[32]

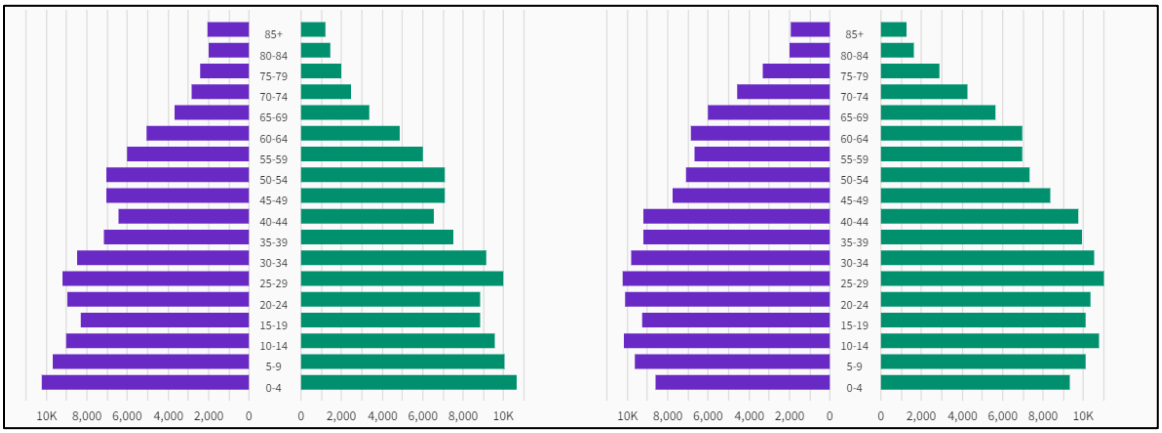


Figure 17: Population of Weber County, UT, by Sex and Age, 2010 and 2022[33]

[30] USA Facts, US Census Bureau, 2024, Weber County, UT population by year, race, & more | USAFacts
[31] USA Facts, US Census Bureau, 2024, Weber County, UT population by year, race, & more | USAFacts
[32] USA Facts, US Census Bureau, 2024, Weber County, UT population by year, race, & more | USAFacts
[33] Ibid.

Economy

Occupations and Major Employers

Weber County's economy relies on manufacturing, retail trade, healthcare, and social assistance. The highest-paying industries are utilities, mining, quarrying, oil and gas extraction, and public administration. Weber County employs 129,000 people, and the largest industries are manufacturing (18,926 people), retail trade (15,390), and health care and social assistance (14,971).[34]

Income

Data USA reports that, from 2020 to 2021, the County's population grew from 255,284 to 259,390—a 1.61% increase—and its median household income grew from $71,275 to $74,345—a 4.31% increase.[35] The highest-paying industries are utilities ($76,375), mining, quarrying, and oil and gas extraction ($65,163), and public administration ($59,950).[36]

Employment Trends

Weber County saw job growth across most industry sectors in the year ending September 2023. Government, education, healthcare, social services, and leisure/hospitality services each contributed strongly to an aggregate of 4% nonfarm job growth year over year, while unemployment stayed low at 3%, close to the Utah average. The largest employment sector in the Weber County economy was government, at 19%. Data for September 2023 showed that the County had gained 4,754 jobs in the previous 12 months—an increase of 4%—with 2,367 jobs added to the government sector and 975 added to the leisure/hospitality sectors. [37]

Employment trends in Weber County have generally been positive in recent years. The County has experienced steady economic growth and diversification of industries, leading to increased employment opportunities. Major sectors contributing to the local economy include manufacturing, healthcare, education, retail, and hospitality (see Figure 18).

Manufacturing has been a significant contributor to employment in Weber County, with companies engaged in aerospace, defense, food processing, and advanced manufacturing. The healthcare and education sectors also have seen consistent growth, driven by the presence of hospitals, medical centers, and educational institutions in the area.

[34] Data USA, 2024, "Weber County Economy" Weber County, UT | Data USA
[35] Ibid.
[36] Data USA, 2024, "Weber County Economy" Weber County, UT | Data USA
[37] Utah.gov, Department of Workforce Services, 2024,"Local Insights-Weber County Snapshot." Weber County (utah.gov)

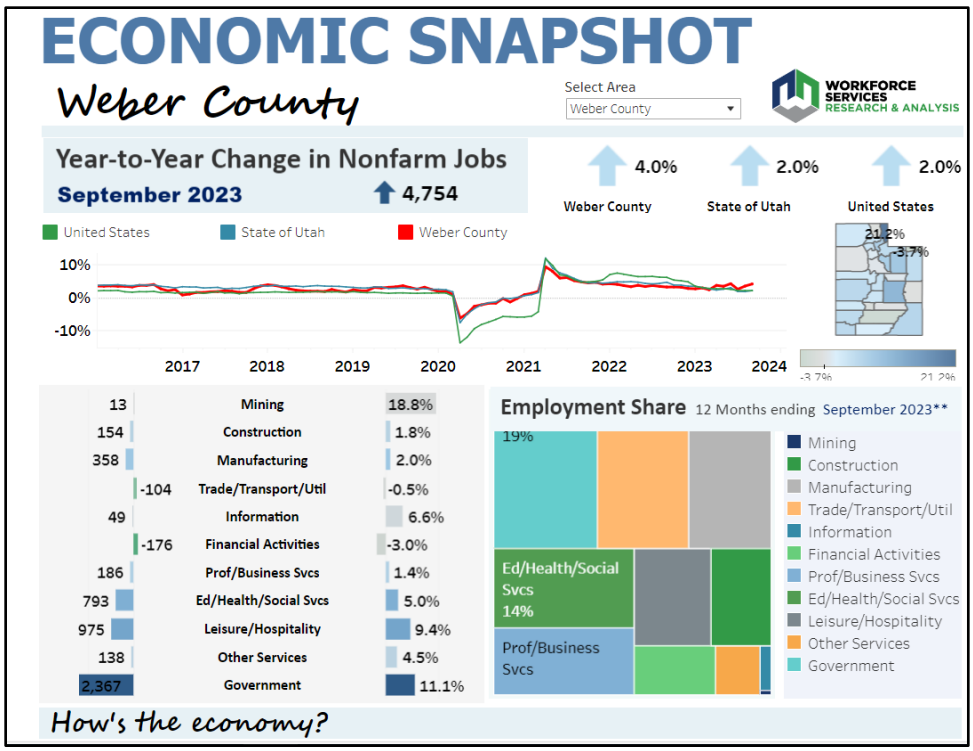


Figure 18: Economic Snapshot of Weber County[38]

The retail and hospitality sectors have shown resilience and expansion, fueled by a growing population and an influx of visitors to attractions like ski resorts and national parks. The development of commercial centers and entertainment venues has further boosted employment opportunities in these sectors. Moreover, the proximity to Salt Lake City and the availability of transportation infrastructure have facilitated commuting and access to additional employment opportunities for Weber County residents.[39]

In terms of employment, agricultural activities in Weber County provide primary and secondary job opportunities for many residents. While specific employment figures may vary, the agricultural sector supports farm operators, farmworkers, and those employed in related industries, such as food processing and distribution. The employment generated by agricultural activities contributes to the local economy and supports rural livelihoods.

[38] Utah.gov, Department of Workforce Services, 2024, "Economic Snapshot Weber County." Weber County (utah.gov)
[39] Utah.gov, Department of Workforce Services, 2024, Weber County (utah.gov)

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 44 CFR § 201.6(c)(1))
	A2. Does the plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and nonprofit interests to be involved in the planning process? (Requirement 44 CFR § 201.6(b)(2))
	A3. Does the plan document how the public was involved in the planning process during the drafting stage and prior to plan approval? (Requirement 44 CFR § 201.6(b)(1))
	A4. Does the plan describe the review and incorporation of existing plans, studies, reports and technical information? (Requirement 44 CFR § 201.6(b)(3))
	E2. Was the plan revised to reflect changes in priorities and progress in local mitigation efforts? (Requirement 44 CFR § 201.6(d)(3))
	HHPD1. Did the plan describe the incorporation of existing plans, studies, reports and technical information for HHPDs [High Hazard Potential Dams]?

Hazard mitigation plans serve as the foundation for developing an effective mitigation program and include a planning process with the following priorities used to steer development:

- A robust whole-community planning process gathering vital stakeholder input and building partnerships to implement mitigation actions.
- Inclusive planning process to ensure that local jurisdictions and county-wide participants are involved in the process and have the opportunity to provide meaningful input.
- Solicitation of information from a broad range of stakeholders,
- Meets the minimum requirements outlined by the FEMA Local Mitigation Planning Policy Guide (see above) and reflects the unique risks, vulnerabilities, goals, and strategies of the plan participants.

This section describes each stage of the planning process used to develop the 2024 Weber County Pre-Disaster Mitigation Plan Update. This planning process provides a framework for developing the Plan document. It included organizing resources, assessing risk, developing the mitigation Plan, drafting the Plan, reviewing and revising the Plan, and adopting and submitting the Plan for approval.

Hazard mitigation planning in the United States is guided by the statutory regulations described in DMA 2000 and implemented through 44 Code of Federal Regulations (CFR) Parts 201 and 206. FEMA's guidelines outline a four-step planning process for developing and approving hazard mitigation plans.

Plan Update Approach

Funding the Update

The Pre-Disaster Mitigation (PDM) Plan Update was financed and developed under the hazard mitigation planning guidelines established by FEMA and the Utah Department of Public Safety, Division of Emergency Management (DEM).

Convening the Plan Participants

This PDM Plan is the result of a collaborative effort initially between the initial contractor, the Utah Department of Public Safety's Division of Emergency Management (DEM), Weber County, including its Commission, Planning Commission, and subsequent Departments and Divisions (i.e., Assessor's Office, Engineering Department, GIS Division, Sheriff's Office, Weber-Morgan Health Department, and Roads Department), local officials (i.e., elected and appointed officials in the various cities and towns in Weber County), local emergency managers and fire departments, school districts, fire districts, special service districts, and state and state agencies (i.e. Utah Division of Forestry, Fire and State Lands, Bureau of Reclamation [BOR]). The final contractor, IEM, was instrumental in reviewing the prior draft Plan contents developed by the initial contractor and addressing the required revisions outlined by DEM in addition to conducting its own planning process methods following FEMA guidelines to complete this present Plan draft in its entirety.

This planning initiative included interviews with various stakeholders from the community, workshops conducted during the development phase of the Plan, and the incorporation of feedback, which was primarily solicited through the working group assembled by the County during the initial Plan development conducted by the initial contractor. The County also provided ample opportunity for public participation, and review of the Plan through in-person public engagement, a digital survey, and a draft Plan website. Weber County put out information about the plan and how to access it throughout its development at the 2022 and 2023 Weber County Self-Reliance and Safety Fair, the 2022 and 2023 Weber County Fair, and the 2024 Safe Kids Day. The initial contractor's draft version of the Plan was also made accessible through the County's website (https://weberhazardplan.org) during their tenure of the project. All comments, questions, and discussions from these activities were given thoughtful consideration as the Plan was developed by the current contractor.

Changes in Priorities

Since the 2016 PDM Plan was approved, Weber County has experienced an increase in natural disasters and their severity. This increase in natural disasters, along with the recommendations from FEMA, has highlighted the need for the County to address climate change. As part of this Plan update, additional emphasis is included in the risk assessment on how the identified hazards may be impacted by climate change. Ogden and Marriott-Slaterville also were in the process of preparing grant applications for the Building Resilient Infrastructure and Communities (BRIC) grant program during this plan update. Updating the plan to reflect current community priorities for mitigation actions ensures plan alignment with

applicable grant programs. The other plan participants did not identify additional changes in priorities from the last plan update.

Organizing Resources

As part of this step, the IEM team reviewed and incorporated, as appropriate, various existing plans, studies, reports, and other technical data/information into the PDM document. Suggestions for important data to include were collected from the participating jurisdictions and stakeholders. Relevant information from the resources in Table 10 and other sources has been incorporated into the PDM Plan, especially the hazard profiles.

Table 10: The Use of Existing Resources

Existing Resource	Used in Plan
Utah 2024 State Hazard Mitigation Plan	Climate Change sections of Hazard Profiles, maps, and figures relevant to sections
Weber County 2016 Pre-Disaster Mitigation Plan	To update all sections of the Plan
2022 Western Weber County General Plan	To provide local information on development trends, land use trends, and population trends in the Community Profile.
Earthquake Safety in Utah	Identify potential earthquake mitigation actions and statistical data added to various sections of the hazard profiles
Federal Emergency Management Agency	How-to guidelines for each section of the Plan
National Climate Data Center	Statistics and research information for each jurisdiction as it relates to drought and severe weather conditions as part of the hazard profiles previous occurrence sections
National Weather Service (NOAA/NCEI*)	Each natural hazard profile includes statistical data related to previous occurrences of disasters in the jurisdictions that were reported
National Inventory of Dams	List of dams and statuses
Prior Draft Plan of previous contractor	To provide vulnerable population information and mitigation actions for each hazard for each participant in the Community Profile chapter

Existing Resource	Used in Plan
State of Utah Drought Plan 2007	Prior wildfire mitigation action review
State of Utah Wildfire Plan 2008	Prior wildfire mitigation action review
Strategic Plan for Earthquake Safety in Utah	Identify potential earthquake mitigation actions and statistical data added to various sections of the hazard profiles
Bureau of Reclamation	Advice on dam inundation mapping and dam of concern to Weber County
University of Utah Seismic Station	Earthquake data and statistical data added to various sections of the hazard profiles
Utah Avalanche Center	Snow and Avalanches and statistical data added to various sections of the hazard profiles
Utah Department of Transportation	Traffic, accidents, and hazardous materials transportation information and statistical data added to various sections of the hazard profiles
Utah Division of Emergency Management	GIS data, flood data, Hazus data on floods and earthquakes added to various sections of the hazard profiles
Utah Division of Forestry Fire and State Lands	State Wildfire information and statistical data added to various sections of the hazard profiles
Utah Geologic Survey	GIS data, geologic information added to various sections of the hazard profiles
Utah Geospatial Resource Center	GIS data and statistical data added to various sections of the hazard profiles
Utah Natural Hazards Handbook	Identify natural hazard risks for Weber County and statistical data added to various sections of the hazard profiles
Utah State University	Climate data and statistical data added to various sections of the hazard profiles
Utah Statewide Fire Risk Assessment Project	Evaluate results of fire risk assessment for Weber County and potential mitigation actions and statistical data added to various sections of the hazard profiles

Existing Resource	Used in Plan
Weber County and Municipalities Emergency Operations Plan	Histories, mitigation actions, public input, data: GIS, assessor, transportation, property, and infrastructure

* Note: NCEI = National Centers for Environmental Information, NOAA = National Oceanic and Atmospheric Administration

Hazard Identification

The Weber County Planning Team reviewed previous hazard mitigation plans and relevant documents to determine the natural hazards that could affect the County. Hazard identification addresses the location, extent, previous occurrences, and probability of future events. The hazard identification process was aided by using FEMA How to Guidance documents: FEMA 386-1, 2, 3, 7; FEMA Post Disaster Hazard Mitigation Planning Guidance DAP-12; the Disaster Mitigation Act of 2000; 44 CFR Parts 201 and 206; the Interim Final Rule; and the Local Mitigation Plan Review Tool. The process also used the best available data from local Geospatial Information System (GIS) departments. Hazard identification used an extensive process that relied on the following multi-disciplinary cross-sector representation:

- Weber County Emergency Management
- Consulting Planning Team
- City and County agencies
- Community stakeholders
- Elected Officials
- Local Emergency Managers
- Local Emergency Planning Committees
- Public works staff
- Special Service Districts, including Water, Sewer, and Fire
- Utah Division of Emergency Management
- Utah Geographic Resource Center
- Utah Geological Survey
- Weber County GIS personnel

The identification process for each of the participating jurisdictions used those natural hazards that consistently affected each area prior to and during the planning process based on the history of occurrences, probability, and risk. The identification of these specific hazards was based on a hazard identification risk assessment that identified the natural hazards that were the most prevalent and posed the most risk to the County. Municipal jurisdictions contributed to the risk assessment analyzes of hazards in their territories. Upon initial review of this Plan, certain hazards were renamed and split into separate hazards to better identify and address their unique considerations in accordance with DEM recommendations.

The 2024 PDM Plan addresses 14 hazards most applicable to Weber County. These are discussed in detail in the next chapter.

Assessing Risk and Vulnerabilities

Each identified hazard was profiled with the most current information and data, to include the occurrence, probability ranking of future hazard events, and each jurisdiction's vulnerability to each hazard. In profiling hazards, IEM worked with the PDM planning team in conducting hazard research to review all natural and community-identified hazards and occurrences. All possible resources for information and data were

considered, such as the current PDM Plan, Master/General/Comprehensive Plans, Community Wildfire Plans, Strategic Plans, and similar sources. IEM provided Hazus models for the risk assessment.

Based on hazard assessments, IEM developed hazard profiles of each jurisdiction's vulnerability to specific hazards. This assessment identifies critical facilities and infrastructure by type and hazard area(s), describes land uses and development trends to inform future land use policy and decisions, and describes how potential climate adaption may impact jurisdiction's current and future vulnerability for each hazard.

Evaluating Participant Capabilities

This update documents the effectiveness of County's efforts to integrate mitigation into other planning efforts since the previous Plan. IEM conducted a capability assessment to inventory existing plans, policies, procedures, programs, and other initiatives that support mitigation against hazards. Jurisdictional participation in the National Flood Insurance Program (NFIP) was analyzed by working with local and state floodplain managers and NFIP administrators to collect information. Gathering and assessing this information identified high-risk areas, properties, and populations and allowed jurisdictions to determine mitigation actions that will be the most effective at protecting the community. The PDM Planning Team formulated and wrote a community description for the Plan, using past plans, current and past studies, and institutional knowledge of stakeholders, municipalities, and the public.

Developing Mitigation Goals and Actions

The Mitigation Strategy was evaluated, and the goals and objectives outlined in existing mitigation plans were reviewed and updated, as needed. This step was particularly important, as Weber County has experienced changes in risk severity and increased frequency of hazard events.

Maintaining the Plan

The Plan Adoption and Implementation section identifies ways to incorporate mitigation strategies into existing planning practices, policies, and programs in an effort to institutionalize hazard mitigation in Weber County's program. The plan maintenance process will also clearly indicate the method and schedule to be used over the next five years to monitor, evaluate, and update the Plan, including timelines and responsibilities.

Plan Participants

The jurisdictions and special districts in Weber County that participated in the PDM planning process are listed below. They attended meetings, collected demographic and background information, and identified mitigation strategies to address the hazards impacting their communities. Three organizations were initially invited to participate but ultimately did not including the Utah Transit Authority (which was determined to be a stakeholder responsible for providing data but not mitigation actions) and Bona Vista Water Improvement District. Where data was available, some information may continue to describe these organizations. All full plan participants had access to the information on the SharePoint website to ensure

that they had the same access to the information presented during meetings, in case they could not attend in-person meetings.

- Weber County
- City of Harrisville
- City of Hooper
- City of Huntsville
- City of Marriott–Slaterville
- City of North Ogden
- City of Ogden
- City of Pleasant View
- City of Riverdale
- City of Roy
- City of South Ogden
- City of Uintah
- City of Washington Terrace
- City of West Haven
- Farr West City
- Central Weber Sewer Improvement District
- Hooper Water Improvement District
- North View Fire District
- Ogden School District
- Pineview Water Systems
- Plain City
- Taylor–West Weber Water District
- Roy Water Conservancy District
- Weber Fire District
- Weber School District
- Weber–Morgan Health Department
- West Warren–Warren Water Improvement District

Weber County organized a working group of individuals with an interest in updating the Hazard Mitigation Plan (HMP) and technical experts in mitigation from the public sector. The committee included planners, engineers, County GIS staff, floodplain managers, sheriff and fire staff, and Weber emergency managers. Each section of the updated Plan was reviewed and analyzed for accuracy by the working groups, individual city emergency management representatives, and Weber County staff. Every section of the Plan was updated and revised as part of the planning process. In addition, IEM conducted two meetings directly with the participating jurisdictions to identify all information to include in the Plan update. Jurisdiction-specific meetings were then held upon request with Weber County, the City of Roy, the Ogden School District, the City of Uintah, the Weber Fire District, the North View Fire District, City of West Haven, the West Warren–Warren Water Improvement District, and the City of Ogden.

Table 11: Plan Participation Summary

Meetings and Assignments	Weber County	Farr West	Harrisville	Hooper	Huntsville	Marriot-Slaterville	North Ogden	Ogden	Plain	Pleasant View	Riverdale	Roy	South Ogden	Uintah	Washington Terrace	West Haven	Weber Sewer Improvement District	Pineview Water Systems	Roy Water Conservancy District	Taylor-West Weber Water District	Weber-Morgan Health Department	Ogden School District	Weber Fire District	Weber School District	West Warren/Warren WID	Central Weber Sewer Improvement District	Hooper WID
9/27/2022-Team Meetings, Timeframes, Expectations, Goals	■																										
10/13/2022-Presentation to Weber County Emergency Managers	■	■					■	■		■	■					■					■						
11/14/2022-Official Kickoff w/Weber County Emergency Managers	■		■		■	■		■					■		■				■	■				■	■		
Submitted local capabilities documents, Critical Infrastructure Report	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Submitted Mitigation Strategy Documents	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		■	■	■	■	■	■	■	■	■	■
Submitted Hazard Vulnerability Assessment	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		■
Individual/Core Planning Team Meeting	■	■	■	■	■	■	■			■	■	■	■	■		■		■					■	■	■		
6/22/2023- Emergency Managers/Risk Assessment Meeting	■			■		■	■					■				■					■						
7/1/2023-Draft Plan Review	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		■	■	■		■
9/15/2023- Public Survey Feedback Review	■																										
5/9/2024-Mitigation Planning Meeting	■		■	■	■	■						■	■														

Meetings and Assignments	Weber County	Farr West	Harrisville	Hooper	Huntsville	Marriot-Slaterville	North Ogden	Ogden	Plain	Pleasant View	Riverdale	Roy	South Ogden	Uintah	Washington Terrace	West Haven	Weber Sewer Improvement District	Pineview Water Systems	Roy Water Conservancy District	Taylor-West Weber Water District	Weber-Morgan Health Department	Ogden School District	Weber Fire District	Weber School District	West Warren/Warren WID	Central Weber Sewer Improvement District	Hooper WID
Plan Participant Specific Metings/ Calls/Emails	■		■	■	■	■				■	■																
6/13/2024 Mitigation Planning Meting	■	■	■	■	■	■	■							■							■						

Table 12 lists the individuals who participated in the draft Plan update by attending meetings, providing data and content, and/or reviewing the draft Plan.

Table 12: Plan Participants

Name	Title	Department/Agency
Lisa Gosline	Weber County Emergency Manager	Weber County-Emergency Management
Bruce Ahlstrom	Town Council Member	City of Huntsville
Cole Allen	General Manager	Hooper Water Improvement District (WID)
Jon Andersen	Public Works Director	South Ogden Public Works
Brian Anderson	Facilities & Maintenance Assistant Director	Weber School District
Justin Anderson	Public Services Director	City of Ogden
Mitch Arquette	School Safety Coordinator	Ogden School District
Ryan Barker	Deputy Chief	North View Fire District
Jer Bates	Director of Communications	Ogden School District
Kristi Bell	City Council Member	City of Uintah
Robert Blind	City Councilman/Emergency Manager	Farr West City
Cody Cardon	City Finance Director	City of Riverdale
Eric Casperson	City Engineer	City of North Ogden
Jared Cherry	Facilities & Operations Maintenance Supervisor	Ogden School District
Britt Clark	Deputy Chief	Weber Fire District
Brandon Cooper	Community Development Director	City of Riverdale

Name	Title	Department/Agency
Brian Cowan	Health Officer/Executive Director	Weber–Morgan Health Department
Gordon Cutler	Mayor	City of Uintah
Bill Davis	Board Member	West Warren–Warren WID
Steve Davis	Treasurer	West Warren–Warren WID
Matt Dixon	City Manager	City of South Ogden
Shawn Douglas	Public Works Director	City of Riverdale
Bren Edwards	Chairmen	Taylor–West Weber Water District
Boyd Ferrin	Assistant Mayor	Farr West City
Lane Findlay	Community Relations & Safety Specialist	Weber School District
Jack Fogal	Emergency Manager	City of Harrisville
Jodi Fusselman	Administrative Assistant	City of Roy Public Works
Glen Gammell	Assistant Public Works Director	City of Harrisville
Ron Gault	Culinary Water System Manager	City of Huntsville
Randy Giordano	Chairman	West Warren–Warren WID
Rob Guiller	City Council Member	City of Uintah
Larry Hadley	Facilities & Maintenance Executive Director	Weber School District
Shelley Hadley	Clerk	Taylor–West Weber Water District
Kevin Hall	General Manager	Central Weber Sewer Improvement District
Jared Hancock	Public works director	City of Hooper

Name	Title	Department/Agency
Tom Hanson	City Manager	Administration, Washington Terrace City
Dave Harris	Emergency Management Coordinator	Hooper-Emergency Preparedness
Michela Harris	Deputy Director	Administration, Weber–Morgan Health Dept.
Cindy Harrison	City CERT Coordinator	City of Pleasant View
Jeff Holden	Public Works	City of Uintah
Jeff Humphrey	General Manager	Pineview Water Systems
Casey Hunsaker	Emergency Manager	City of North Ogden
Lieutenant Jeffries	Sheriff	Weber County Sheriff
Derek Johnson	Engineer	Sunrise Engineering
Eli Johnson	Emergency Management Tech/Planner	Weber County-Emergency Management
Jami Jones	Finance Director	City of North Ogden
Jeremiah Jones	Deputy Chief	North View Fire District
Amber Kelley	Management Services Director	Roy City Management Services
Jennie Knight	City Administrator	City of Harrisville
Ron LaRue	Board Member	West Warren–Warren Water ID
Katie Lewis	Emergency Planner	Weber–Morgan Health Department
Valerie Lopez	Emergency Management Support Coord.	Weber County-Emergency Management

Name	Title	Department/Agency
Zachary Loveland	Community Development Director	Marriott–Slaterville Community Development
Amy Mabey	City Administrator	City of Pleasant View
Mike Marriott	Board Member	West Warren–Warren Water ID
Kris Maxfield	Fire Chief	North View Fire District
Trent Meyerhoffer	Community Services Director	Marriott–Slaterville Community Services
Gary Meyers	Weber County Engineer	Weber County-Emergency Management
Ed Mignone	Engineer	City of West Haven
Kenny Miller	Emergency Manager	Ogden Fire Department
Bill Morris	City Administrator	Marriott–Slaterville Administration
Michelle Mortensen	City Recorder	City of Uintah
Alika Murphy	City Planner	City of West Haven
Logan Murphy	Construction & Energy Manager	Ogden School District
Melissa Murray	Clerk	West Warren–Warren Water ID
Taylor Nielsen	City Engineer	City of Ogden
Darin Parke	Police Chief	South Ogden Police
Clayton Peterson	Fire Chief	Fire Department, Washington Terrace City
Ken Phippen	Mayor	Farr West City
Marcus Phipps	Compliance & Safety	Ogden School District

Name	Title	Department/Agency
Skyler Pyle	Emergency Manager	Weber–Morgan Health Department
Ben Quick	Previous general manager	Pineview Water Systems
David Reed	Deputy Fire Marshall	Weber Fire District
Ryan Rogers	Manager	Taylor–West Weber Water District
Daniel Schuler	Public Works Director	Plain City Public Works
Mike Scott	Superintendent Operations and Management	Pineview Water Systems
Justin Shinsel	Public Works Director	City of Harrisville
Jared Sholly	Fire Chief	Riverdale Fire Department
Shannon Smith	Town clerk	City of Huntsville
Tracy Smith	Board Member	West Warren–Warren Water ID
Richard Sorensen	Mayor	City of Huntsville
Janessa Sullivan	Social Media Administrator	City of West Haven
Paul Sullivan	Fire Chief	Weber Fire District
Dan Tanner	Emergency Management	City of West Haven
Scott Venstra	Public Works Director	City of West Haven
Cameron West	Fire Chief/Emergency Manager	South Ogden Fire
Bryce Wilcox	City council	Hooper City Council
Theron Williams	Fire Chief	Roy City Fire Department
Challlis Wilson	Inspector	Taylor–West Weber Water District
Mark Wilson	Chief of Police	City of Harrisville

Name	Title	Department/Agency
Zane Wool-stenhulme	Business Administrator	Ogden School District
Steve Parkinson	City Planner	City of Roy Community Develop-ment
John Bjerregaard	City Engineer	City of Roy 3rd Party Consultant Wasatch Civil
Matt Andrews	City Manager	City of Roy City Administration
Brody Flint	Assistant City Manager	City of Roy City Administration
Brandon Edwards	Public Works Director	City of Roy Public Works
Rodney Banks	General Manager	Roy Water Conservancy District

Stakeholder Engagement

For this Plan update, each jurisdiction was asked to identify internal and external stakeholders who could support the Plan update. The team worked with Weber County, including consulting with the Weber–Morgan Health Department, which works with socially vulnerable populations, to compile a list of stakeholders, including those representing underserved and vulnerable populations.

According to the Local Mitigation Planning Policy Guide, stakeholders were categorized in the following ways:

1. Local and regional agencies involved in hazard mitigation activities.

   Examples: Public works, emergency management, local floodplain administration, and Geographic Information Systems (GIS) departments.

2. Agencies that have the authority to regulate development.

   Examples: Zoning, planning, community, and economic development departments, building officials, planning commissions, or other elected officials.

3. Neighboring communities.

   Examples: Adjacent local governments, including special districts, such as those affected by similar hazard events or may share a mitigation action or project that crosses boundaries. Neighboring communities may be partners in hazard mitigation and response activities or where critical assets, such as dams, are located.

4. Representatives of businesses, academia, and other private organizations.

Examples: Private utilities and major employers that sustain community lifelines.

5. Representatives of nonprofit organizations, including community-based organizations, that work directly with and/or support underserved communities and socially vulnerable populations, among others.

   Examples: Housing, healthcare, and social service agencies.[40]

Stakeholders were engaged through presentations to the Utah Region 1 Homeland Security Coalition and the Local Emergency Planning Committee (LEPC). The Coalition comprises 50–70 people, including emergency managers from neighboring communities like Box Elder, Cache, Davis, Morgan, and Rich counties, as well as fire/hazmat representatives, hospitals, and local city emergency managers. The LEPC has over 100 members from the private and public sectors including businesses.

The stakeholder survey differed from the public survey in that it specifically requested information on the types of mitigation the stakeholder's agency was involved in and willing to support. All the stakeholders listed in Table 13 and Table 13 were invited to participate in the survey and were given an opportunity to participate in the Plan update.

Table 13: Stakeholders Involved in the Plan Update

Name	Title	Department/Agency
Tal Ehlers	Emergency Management Program Manager	Utah Transit Authority
Amy Van Horn	Emergency Management Co-ordinator	Bureau of Reclamation
Ryan Barker	Fire Marshall	North View Fire District
Brent Brown	Stake Emergency Manager	LDS Church
Debra Jimenez	Pastor	Ascension Lutheran Church
Jeremiah Jones	Deputy Chief	North View Fire District
Shawn Rasmussen	Stake Emergency Manager	LDS Church
Christina Shaw	Special Service District Utility Clerk	West Haven Special Services
Richards Bott	N/A	Richards Bott Architects

[40] FEMA, "Local Mitigation Planning Policy Guide." https://www.fema.gov/sites/default/files/documents/fema_local-mitigation-planning-policy-guide_042022.pdf

Name	Title	Department/Agency
VCBO Architecture		VCBO Architecture
Dennis Crezee	Fire Chief	Plain City Fire Dept.

Furthermore, IEM and Weber County met with Amy Van Horn, Emergency Management Coordinator with BOR to discuss the dam failure hazard profile. BOR is a local dam owner responsible for 10 dams in Weber County, all of which are a High Hazard Potential Dam. Data sources and current draft maps including for inundation areas, dam locations and classifications, were evaluated, and BOR's feedback was taken into consideration when determining how best to profile this hazard. BOR also shared the risks associated with Watkins Dam to Weber County which was incorporated into the Dam Failure section. Further, as a local dam owner, Weber County provided information on the Utaba Retarding (a HHPD) mitigation status.

While a multitude of stakeholders were invited to participate, not all could. Additional stakeholders invited to participate are included in Table 13.

Table 14: Additional Stakeholders Invited to Participate

Name	Type of Organization
Community Organizations	
America First Credit Union	Private Sector Financial Institution
American Red Cross of Northern Utah Greater Salt Lake Area Chapter	VOAD/Nongovernmental Organization
Catholic Community Services of Utah	Nonprofit/Religious/Community Services
Community Options, Inc.	Nonprofit/Disabilities
Enable Utah	Nonprofit/Disabilities
Family Counseling Service of Northern Utah	Nonprofit/mental health
Family Promise of Ogden	Nonprofit/Homeless Sheltering
Goal Foundation	Nonprofit/Community Outdoors
Habitat for Humanity	Nonprofit/Housing Rehabilitation

Name	Type of Organization
Homeless Veterans Fellowship	Nonprofit/Homeless Veterans
Junior League of Ogden	Nonprofit/Women's leadership
Lantern House	Nonprofit/Emergency Assistance/Sheltering
My Local Utah	Online local Business Communications Re-source
NAACP Ogden Branch	Nonprofit Civil Rights Organization
Ogden Downtown Alliance	Nonprofit/Local Business Coalition
Ogden-Weber Chamber of Commerce	Nonprofit/Chamber of Commerce
Ogden-Weber Community Action Partnership	Nonprofit/Family Resources Self-Sufficiency
Rise, Inc	Nonprofit/Disabilities
Division of Children and Family Services	Government Agency
Health and Human Services, Services for People with Disabilities	Government Agency
Roads to Independence	Nonprofit/Disabilities
Suazo Business Center	Nonprofit/Business Hispanic Community
Suzie's Seniors Companionship Services	Nonprofit/Senior Services
The Salvation Army	Nonprofit/Social Services
Wolf Creek Foundation	Nonprofit/Military Families Hill Air Force Base
Turn Together Foundation	Nonprofit/Veterans
United Way of Northern Utah	Nonprofit/Social Services
Weber University	University

Name	Type of Organization
Utah Black Chamber of Commerce	Nonprofit/Business Black Community
Utah Department of Veteran and Military Affairs	Nonprofit/Veterans/Military
Utah Neighborhood Connection	Nonprofit/Community Engagement
Weber Basin Water Conservancy District	Special District
Weber Human Services Foundation	Nonprofit/Human Services
Your Community Connection Family Crisis Center	Nonprofit/Social Services
YMCA of Northern Utah	Nonprofit/Community Activities
Young Automotive Group Caring for Young	Nonprofit/Youth Services
Youth Impact	Nonprofit/Youth Services
Dams and Reservoirs	
Four Mile Debris Basin – Harrisville Dam	
Keith Ogden – 68r4	
Kelly Canyon	
North Ogden City – Coldwater Canyon	
North Ogden City – Oak Lawn Park	
North Ogden City – Orton Park/2100 North	
Ogden City – Beus Pond	
Ogden City – Sullivan Hollow	
Sourdough Wilderness Ranch	
South Ogden City Burch Creek Debris Dam	

Name	Type of Organization
South Ogden City Burch Creek Debris Dam (Glas-man)	
South Ogden Equalizing Reservoir 13	
South Ogden Equalizing Reservoir 17	
South Ogden Equalizing Reservoir 25	
South Ogden Equalizing Reservoir 25a	
South Ogden Equalizing Reservoir 25b	
Ten Acre Lake	Special District
Utaba Retarding	
Weber Basin Equalizing Reservoir – Combe	
Weber/Box Elder – Reservoir 3 – Unit C	
Major Employers	
Balchem	Agricultural/Chemical
CSC Global	Registered Agent
Gossner Foods	Dairy Manufacturing
Hill Air Force Base	Military-Civilian Employer
Intermountain Healthcare – McKay-Dee Hospital	Health Facility
KCC Companies	HVAC commercial and residential
Northrup Grumman	Private Sector Tech and Innovation
PacifiCorp	Electric Utility
Verizon Wireless	Private Sector Communications

Name	Type of Organization
Westinghouse/Western Zirconium	Manufacturing

Public Outreach



Figure 19: Example Flyer Posted In-Person

In general, the strategic approach to public outreach for this Plan update was to "meet people where they are." Whether it is the general public, or socially vulnerable populations, it was discussed how specific planning meetings could be challenging to get good participation. Instead, the plan participants focused on identifying where people already gather, such as community events, gathering places like churches and senior centers, venues like grocery stories, low-income housing, nursing homes, libraries, and meetings like city council meetings and youth group meetings. In addition, digital (website, social media, and local media) and in-person opportunities were provided to garner additional feedback between July 2023 and July 2024 (see Figure 19). Furthermore, faith-based and community organizations acted as trusted messengers, amplifying the opportunity to engage in the hazard mitigation Plan throughout the planning area. Additional public outreach included reaching out to County programs that intersect with programs designed for refugees, the homeless, substance abuse, the elderly, economically disadvantaged, and other English-speaking individuals.

Digital Survey

The IEM planning team drafted and shared a public survey in English and Spanish. Each Plan participant reviewed and shared the survey on multiple occasions in different venues and in in-person and online formats (see Figure 20). The public survey asked the public about their hazards of concern, assessed their understanding of the assets at risk, solicited information on what areas or community assets are more vulnerable, what they are doing in terms of mitigation, what mitigation actions they would support the community undertaking, and any specific suggestions for mitigation actions. One important component of the public survey process was engaging socially vulnerable populations and disadvantaged communities. Each plan participant selected the population that they wanted to focus on, but in general, non-English-speaking populations, the elderly, youth, and low-income individuals were engaged. In particular, a diverse range of people from various ethnic backgrounds was engaged at the Safe Kids Day event. Table 15 lists the outreach efforts of the plan participants.



Figure 20: Example Links to the Pre-Disaster Mitigation Plan Public Survey on Social Media Posts of Plan Participants

Table 15: Public Outreach Conducted by Jurisdiction

Jurisdiction	Description of Outreach Efforts
Weber County	The Weber County Safe Kids event was "hugely successful;" an estimated 2000 households which included 5000 attendees attended at the Safe Kids Day Fair including many children with their parents at the Newgate Mall in Ogden, flyers were distributed with the public survey QR code and information about the hazard mitigation update. Diverse attendees were approached and asked to take the public survey. The County has reached out to its partners for contact information for the WIC Program, the elderly, the Hispanic community, nursing homes, Head

Jurisdiction	Description of Outreach Efforts
	Start, and Catholic Community Services of Utah, which works with refugees (see Figure 20). The County also shared the survey with the LDS leadership in the county which includes the Stake Presidents who were asked to pass it on to the wards.
City of Harrisville	Included the survey QR code in its monthly newsletter to all residents. Worked with local church groups to put the QR code in weekly church announcements. The hazard mitigation Plan update was presented at a senior luncheon (see Figure 21), and attendees were given the survey QR code (see Figure 22) and printed copies of the survey. Paper copies were available at city offices, so residents could complete the survey in person, and City employees helped seniors use a computer to complete the survey, as many do not have Internet or smartphone access. Shawn Rasmussen's LDS stake conducted a preparedness fair on May 17, 2024. A booth there showed the Weber County Pre-Disaster Mitigation (PDM) Plan with a QR code to encourage people to provide feedback on the Plan. It is unknown how many people were in attendance.
City of Hooper	Hooper shared flyers about the Plan's digital survey and manned a booth at Hooper Tomato days and an Emergency Preparedness, Safety, and Health Fair. In addition to the general public, these areas and bilingual outreach were designed to engage the elderly, youth, and Spanish speakers.
City of Huntsville	Put the PDM Plan feedback flyer on its website, sent it in a town email, and in its monthly newsletter, which will be more available to some of the elderly population.
City of Marriott–Slaterville	Shared the draft planning website on its social media platforms and City website. It was also posted at the City offices where seniors meet for lunch, and the youth scouts, the youth city council, and different camps of the Utah Daughters of the Pioneers meet. No public comments were received by City staff.
City of North Ogden	Created posts on its two social media pages and placed flyers at the entrances of Public Works, City Hall, the North View Senior Center, the North Ogden Police Department, and at payment windows in those locations. Asked the North Branch of the Weber County Library to place the flyer on its community bulletin board and asked Ace Hardware, Lee's Marketplace, and Smith's Marketplace to post flyers for customers to see.
City of Ogden	Ogden City made great efforts to engage and notify the public about the Plan update by collectively reaching out to all demographics and vulnerable populations. The City accomplished this by sharing the flyers on social media channels, printing them off, and posting them at various sites, including the Golden Hours Senior Center, County Library in Ogden City boundaries, and Public Works building. All efforts were made to obtain public feedback on ways to help prepare for disasters and ultimately help keep the community safe.
City of Pleasant View	The City has been actively working to restructure and reenergize its Community Emergency Response Team (CERT) program, including many public meetings and interactions. This will be a contributing factor to the mitigation Plan. The City is also coordinating with the North View Fire District on its involvement in

Jurisdiction	Description of Outreach Efforts
	Founders Day Celebration events to incorporate education and outreach items. The City is also using its website and social media pages.
City of Riverdale	Shared the digital survey on social media and publicized the opportunity to participate in the Plan update in person at the local senior center.
City of Roy	Roy City made great efforts to engage and notify the public about the Plan update by collectively reaching out to all demographics and vulnerable populations. The City shared flyers on social media channels and by posting them at various sites, including the Roy Senior Center, nursing homes, grocery stores, the Utah Food Bank, the Southwest Library, convenience stores, and schools that provide summer lunch programs to school-age children. All efforts were made to obtain public feedback on ways to help prepare for disasters and ultimately help keep the community safe.
City of South Ogden	South Ogden shared the digital survey on their website, Facebook, Twitter, in the community newsletter that is sent out with every water bill, and through the city's mass notification system (Regroup).
City of Uintah	Sent out notifications with water bills and asked for residents' input and comments.
City of Washington Terrace	**General Public Engagement:** The City engaged the public in the Plan update through a comprehensive outreach strategy that included distributing flyers with QR codes. The flyers were placed at key locations throughout the City to ensure broad visibility and accessibility. Specific locations included City Hall, the Senior Center, and the laundromat. **Engaging Socially Vulnerable Populations**: Recognizing the importance of including socially vulnerable populations in the planning process, the City implemented additional measures to ensure that these groups were informed and able to participate: • **Language Accessibility:** Flyers were made available in multiple languages to cater to non-English-speaking residents. This helped ensure that language barriers did not prevent participation. • **Digital Outreach:** Besides physical flyers, digital versions were shared through social media and the City's website. This approach reached individuals who may not visit public spaces but are active online. • **Community Meetings and Workshops:** The City will organize community meetings and workshops at accessible locations and times to discuss future Plan updates.
City of West Haven	Posted a flyer and QR codes on its website and social media pages to ask for public comments. Emails with the flyer were sent to high-density developments—apartments and assisted living centers—for property managers to share with the tenants. The City inserted the public survey into customers' monthly utility bill to reach 7000 households in June (see Figure 23).
Farr West City	Farr West put a few things out to the public throughout the planning process, including inviting the public to share their comments on the Pre-Disaster Mitigation Plan. The request for inputs has been requested during City Council meetings as a general public announcement. There have also been many requests

Jurisdiction	Description of Outreach Efforts
	made via Word of Mouth and personal contacts, including the recent 4th of July Freedom Festival at a local park. Farr West also shared the digital survey graphics via the City's website and social media. In addition, the digital survey was shared with local media site for Farr West. Hard copies of the flyer have been placed at local organizations, including shopping and gathering places. The flyers have been placed at Local Gym, Local Store, Sr. Centers, and City Office Buildings and are being submitted to local religious organizations. The local stores include grocery stores, hardware stores, Western/TAC stores. The Sr. Centers include the City facility and a Community Center at a 50+ mobile home park. Some of the feedback has been that individuals hadn't thought about mitigation planning; they thought it was basically reactive planning for after-the-fact instances. There was a concern that funding would be spent to try to prevent disasters, and that would use the funds that would be needed to recover from emergency situations. There was a suggestion that the City look at the "Ditches" that are used to water farm fields, and the potential for flooding (as has occurred in the past). The idea was to ensure that water distribution canals and ditches were maintained so debris and overgrowth do not cause problems. Farr West City will continue to seek inputs, as this is not a one-and-done process. There are renewal requirements for posting notices at most of the stores; thus, continued publicity will have to be managed. The use of postings in Refuse and Water bills was discussed with City employees. It was rationalized that historically, very little return has been realized from this form of media, given that a large number of people are on "Auto Pay" for their bills these days. The use of local meetings to broadcast will also be used. The CERT council has been notified to bring the request for input during their gatherings, as will the Planning Commission, and other ancillary meetings that the public is invited to participate in.
Central Weber Sewer Improvement District	The District posted the public survey, including in English and Spanish, on the District's website and in administration building. As aa wholesale provider of wastewater treatment services the District does not bill individual citizens and does not hold events. Posting information at the publicly accessible administration building is the best opportunity for the District to engage the public
Hooper WID	Information is on the website, and flyers are hung at commonly used places in the community. The City serves all members of the population evenly, so everyone has the opportunity to obtain the information. the website is free for anyone who wants to use it, regardless of their personal status or level of income.
North View Fire District	Coordinated with North Ogden, Pleasant View, and Harrisville for their City celebration events; will provide a booth and outreach to gain citizen input. Worked with North View Senior Center and put up flyers in their facility. Reached out to the public through posts on the Facebook page.
Ogden School District	Public open houses have been held for at least 10 years to consider approval for funding and design proposals for all new construction projects. Additional public hearings were held when necessary for legal compliance. Public feedback has

Jurisdiction	Description of Outreach Efforts
	been minimal. However, the feedback received has been taken into consideration for construction planning.
Pineview Water Systems	Pineview was represented on the digital survey shared to the community newsletter for their service area (South Ogden), community gathering places like a mobile home park, grocery stores, a senior center (Farr West, North Ogden),
Plain City	Plain City shared the Weber County draft planning public survey in Spanish and English on their social media Plain City page (Plaincityutah.org)/Facebook page and asked the public to comment.
Roy Water Conservancy District	Customers in the district's service area were encouraged to participant in the public survey via bilingual posts on social media and in-person flyers at high occupancy and visibility areas like apartments, a nursing home, and grocery stores.
Taylor–West Weber Water District	Notified consumers of risks, especially Cross Connection hazards (connecting a safe drinking water supply to a contaminated source). The water district notified the consumers to be Water Wise and conserve water as much as possible.
Weber Fire District	Invited the community to participate in a board meeting about potential concerns, talked with residents of Westwood Village, and reached out to the public on social media in English and Spanish.
Weber School District	The Board of Education passed a resolution in a public board meeting supporting the PDM Plan (1/2023). The PDM Plan Survey was posted on the District's Facebook page.
Weber–Morgan Health Department	Shared the digital survey in English and Spanish through social media and collaborated with local champions at the Ogden Civic Action Network (OgdenCAN) to promote participation in the Plan update. OgdenCAN helps reach vulnerable populations and engage community members through its work in the East Central Neighborhood of Ogden, which is identified as disadvantaged according to the Climate and Economic Justice Screening Tool (CEJST).
West Warren–Warren WID	This small, rural community does not have information about socially vulnerable populations, but the churches are the most central locations in the community. The public was engaged by hanging fliers with the QR code on church doors from May 26 to June 8, 2024. The WID discussed updates to the Plan and its water system regarding the use of fees in monthly public board meetings on May 7 and June 4, 2024. At both meetings, there were 2–8 members of the public present. Comments were received regarding several parts of the Plan, including the proposal of a water storage tank, creating a future master Plan for infrastructure regarding water lines, secondary water, residential and commercial developments, and land for a possible fire station.


Harrisville City Monthly

Senior Luncheon

will be held for all Harrisville Seniors 55+

Tuesday, May 14, 2024
at Noon
at the Harrisville City Cabin
(725 West Harrisville Road)

Fiesta Time!

This month the luncheon will be a *Taco Bar!*
The city will provide the
Ground Hamburger (gluten-free) & Shredded Cheese.
Contact Grover / Diana Wilhelmsen at 801-941-7995
for taco bar sign-up sheet items or questions.

Figure 21: City of Harrisville Seniors Luncheon Notice

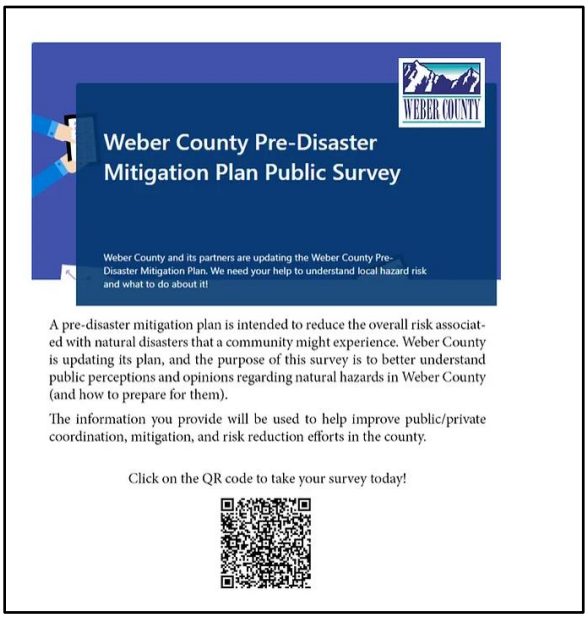


Figure 22: Links to the Pre-Disaster Mitigation Plan Public Survey on the City of Harrisville Website



Figure 23: Link to **Pre-Disaster Mitigation Plan** Public Survey on the City of West Haven Website

Feedback from Public Survey

After several months of conducting public outreach in Weber County, 205 members of the community responded to the Weber County PDM Plan Public Survey. The following sections summarize the responses and comments received. Additional feedback was incorporated into the risk assessment and mitigation actions, where appropriate. This feedback helped informed the vulnerability assessment and mitigation strategy portions of this hazard mitigation plan update.

CONCERN ABOUT SPECIFIC HAZARDS

Of the 205 respondents, 48 were somewhat concerned or very concerned about avalanches, 100 were somewhat concerned or very concerned about dam failure, 162 were somewhat concerned or very concerned about drought, 185 were somewhat concerned or very concerned about earthquake, 129 were somewhat concerned or very concerned about extreme heat, 108 were somewhat concerned or very concerned about extreme cold, 119 were somewhat concerned or very concerned about flood, 109 were somewhat concerned or very concerned about invasive species, 70 stated they were somewhat concerned or very concerned about landslides, 76 were somewhat concerned or very concerned about thunderstorms, 136 were somewhat concerned or very concerned about wildfires, and 133 were somewhat concerned or very concerned about winter storms.

HAZARD INSURANCE COVERAGE

Respondents were asked what residential insurance coverage for natural hazards they had; 137 stated they had fire insurance, 74 had windstorm insurance, 65 had earthquake insurance, 41 had flood insurance, and 13 had landslide insurance.

PARTS OF THE COMMUNITY MOST AT RISK

Respondents were asked what parts of the community (including buildings, people, economic activities and events, and natural areas) are most at risk for these hazards. Respondents were very forthcoming, and

most responses were related to concerns about wildfire, flooding, landslides, and earthquake risks. Many responses were related to unreinforced masonry buildings, such as hospitals, schools, and nursing homes, and the impacts of earthquakes, flooding, and landslides on those structures. There were several mentions of homes in the canyons and near the Ogden River at risk of flooding, the potential failure of the Causey Dam, and the risk of fire in wild vegetation.

Respondents also stated concerns about evacuation routes, such as highways to Ogden Valley at risk of closure from flooding, dam failure, earthquakes, landslides, and avalanches, and residents not having access to emergency medical care and food supplies, gas, and power, due to road closures. Respondents were concerned that mountainside communities were at high risk of wildfires and landslides. There was one mention of the unhoused population and their exposure to extreme weather events and several mentions of vulnerable populations, such as children, the elderly and the disabled being at high risk to all the hazards due to the lack of adequate information on how to prepare for or recover from disaster.

Specific communities and infrastructure mentioned as high risk were West Warren and the foothills and the Pineview reservoir at risk of dam failure; the eastern hillside at risk of landslides and avalanches; the foothills, canyon fronts, and the Ogden valley, North Ogden pass, and Ogden Canyon at risk of wildfire; and the City of Harrisville and homes and businesses west of I-15 at risk of flooding.

MITIGATION ACTION EXAMPLES

During the planning process, plan participants worked with the PDM Core Planning Team to develop a mitigation strategy, and after reviewing the public survey responses, develop specific mitigation action plans which will help address the public concerns regarding identified hazard risks. Weber County plan participants developed four action plans for the Weber County Engineering Department, the State of Utah and Natural Resources Conservation Services to (1) rehabilitate or rebuild Utaba structure, (2) develop an environmental study and engineering to replace or refit the dam structures, (3) design new structure based on study, and (4) construction of new dam structures (See Mitigation Strategy Section).

Weber County plan participants also identified mitigation action plans to address public concerns of earthquake impact on county assets such as unreinforced masonry buildings, with an action plan developed to Improve seismic resilience at the Weber Center.

The City of Harrisville plan participants worked with the PDM Core Planning Team to identify a mitigation action plan to develop a long-term plan to replace city office buildings with modern structures that will safely house all city services. In addition, they identified mitigation action plans to address dam failure and flooding by developing a plan to upgrade stormwater infrastructure under Highway 89. This mitigation action plan would address specific concerns related to this choking point for stormwater that has caused flooding because it could not handle the stormwater that goes through it. This would also help with high-water levels in the dam and Independence Park. In 2023 due to a large amount of snowpack and spring rains, there was flooding. Increasing water flow at that point would have reduced flooding.

The City of Ogden responded to the public concerns of risk from earthquake, dam failure and landslide by developing mitigation actions to address potential Ogden Canyon infrastructure failure, by replacing and maintaining distribution systems that cross at fault lines.

These serve as examples of how the public feedback is incorporated into the mitigation actions. Future mitigation actions may be informed by the public action which has been incorporated into the risk assessment. Additional detail can be found in each hazard profile where comments were received.

Risk Assessment

	B1. Does the plan include a description of the type, location and extent of all natural hazards that can affect the jurisdiction? Does the plan also include information on previous occurrences of hazard events and on the probability of future hazard events? (Requirement 44 CFR § 201.6(c)(2)(i))
	B2. Does the plan include a summary of the jurisdiction's vulnerability and the impacts on the community from the identified hazards? Does this summary also address NFIP-insured structures that have been repetitively damaged by floods? (Requirement 44 CFR § 201.6(c)(2)(ii))
	E1. Was the plan revised to reflect changes in development? (Requirement 44 CFR § 201.6(d)(3))
	HHPD2: Did the plan address HHPDs in the risk assessment?

Assessing the risks for natural hazards measures their potential impacts on life, property, and the economy. The intent of risk assessment is to identify, as much as practicable, the qualitative and quantitative vulnerabilities of a community, given the data available. A risk assessment provides a better understanding of the impacts of natural hazards on the community. It provides a foundation on which to develop and prioritize mitigation actions (see the Mitigation Strategy section). The aim is to reduce damage from natural disasters through increased preparedness and response times and to allocate resources to areas of greatest vulnerability.

This risk assessment followed a five-step process described in FEMA's Local Mitigation Planning Handbook 2023:[41]

1. **Identify hazards:** Clarify what hazards may occur in the planning area.
2. **Describe hazards:** Gather more information about the hazards: where they can happen, how impactful they have been in the past, and how often and with what intensity they might occur in the future.
3. **Identify community assets:** Examines which assets are most vulnerable to loss during a disaster, including changes in development since the previous plan was created.
4. **Analyze impacts**: Describe how each hazard could affect the assets of each community.
5. **Summarize vulnerability:** Bring all the analyses together to draw conclusions. From these conclusions, the planning team can develop a strategy to increase the resilience of residents, businesses, the economy, and other vital assets.

[41] FEMA, "Local Mitigation Planning Handbook." https://www.fema.gov/sites/default/files/documents/fema_local-mitigation-planning-handbook_052023.pdf

Methodology

Hazard Identification

Fourteen hazards were identified for the Weber County planning area. While it is recognized that dam failure in itself is not a natural hazard, the potential impact on Weber County from a catastrophic dam failure would likely cause severe flooding and related impacts, so inclusion in the Plan was warranted.

- Avalanche
- Dam Failure
- Drought
- Earthquake
- Extreme Cold
- Extreme Heat
- Flood
- Invasive Species
- Landslide
- Problem Soils
- Thunderstorms
- Tornado
- Wildfire
- Winter Storms

Each of the participating jurisdictions considered these 14 hazards and evaluated which consistently affected its area, based on history of occurrences and probability. The jurisdictions used forms to identify the hazards they wished to include in their risk assessment and provided a brief explanation for any that they decided not to include. The hazards not included were due to a) not being a risk or very minimal risk to that jurisdiction or b) not being within the legal responsibilities of the organization, in the case of special districts. Table 16 lists the hazards considered by each plan participant.

Table 16: Hazards of Concern by Jurisdiction

	Avalanche	Dam Failure	Drought	Earthquake	Extreme Cold	Extreme Heat	Flood	Invasive Species	Landslide	Problem Soils	Thunderstorm	Tornado	Wildfire	Winter Storm
Weber County	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Farr West		X	X	X	X	X	X				X		X	
Harrisville		X	X	X	X	X	X	X		X	X	X	X	X
Hooper		X	X	X	X	X	X	X			X		X	X
Huntsville		X	X	X	X	X	X				X		X	X
Marriott–Slaterville		X	X	X		X	X	X		X		X	X	X
North Ogden				X	X	X	X		X				X	X
Ogden		X	X	X	X	X	X		X		X	X	X	X
Plain City		X		X			X			X		X		

	Avalanche	Dam Failure	Drought	Earthquake	Extreme Cold	Extreme Heat	Flood	Invasive Species	Landslide	Problem Soils	Thunderstorm	Tornado	Wildfire	Winter Storm
Pleasant View	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Riverdale		X	X	X	X	X	X	X	X	X	X	X	X	X
Roy			X	X		X	X	X		X	X			X
South Ogden			X	X	X	X	X	X	X	X	X	X	X	X
Uintah		X	X	X	X	X	X		X		X		X	X
Washington Terrace			X	X	X	X	X		X	X	X	X	X	X
West Haven		X	X	X	X	X	X	X		X	X	X	X	X
Ogden School District		X		X	X	X	X		X		X	X	X	X
Hooper WID*				X										

	Avalanche	Dam Failure	Drought	Earthquake	Extreme Cold	Extreme Heat	Flood	Invasive Species	Landslide	Problem Soils	Thunderstorm	Tornado	Wildfire	Winter Storm
Pineview Water Systems*	X	X	X	X		X	X	X	X	X	X	X	X	
Roy Water Conservancy District		X	X	X	X	X	X	X	X	X	X	X		X
Taylor West Weber Water District		X	X	X	X	X	X			X	X	X	X	X
Weber-Morgan Health Department		X	X	X	X	X	X	X	X		X	X	X	X
Weber School District	X	X	X	X	X	X	X	X	X	X	X	X	X	X
West Warren–Warren WID*			X	X	X	X	X	X		X	X	X	X	X

	Avalanche	Dam Failure	Drought	Earthquake	Extreme Cold	Extreme Heat	Flood	Invasive Species	Landslide	Problem Soils	Thunderstorm	Tornado	Wildfire	Winter Storm
Central Weber Sewer Improvement District				X			X		X	X	X	X	X	X
Weber Fire District	X	X	X	X	X	X	X	X	X		X	X	X	X
North View Fire District				X	X	X	X		X				X	X

*WID = Water/Watershed Improvement District

There are multiple hazards identified in this list that are not applicable to every jurisdiction. For that reason, the plan participants provided a rationale for each hazard they are omitting for their community or organization. While certain hazards were excluded from the jurisdiction's hazard mitigation plan, the jurisdiction may have still opted to include mitigation actions aimed at reducing community vulnerability and promoting long-term, forward-looking resilience planning.

Table 17: Rationale for Hazard Omissions

Plan Participant Name	Hazard	Rationale for Omitting
Farr West	Avalanche	Farr West is not within the generalized Ogden area mountains avalanche zone.

Plan Participant Name	Hazard	Rationale for Omitting
	Invasive Species	Limited past occurrences with recorded damages indicate this is not a threat.
	Landslide	Not an issue due to the flat topography of the city.
	Problem Soils	No historic occurrences indicate that this hazard is unlikely to impact Farr West City.
	Tornado	No historic occurrences indicate that this hazard is unlikely to impact Farr West.
	Winter Storms	No historic occurrences indicate that this hazard is unlikely to impact Farr West.
Harrisville	Avalanche	Harrisville is not within the generalized Ogden area mountains avalanche zone.
	Landslide	Not close enough to mountains to be impacted by landslides. The majority of the city is at a similar elevation which would prevent landslides from occurring.
Hooper	Avalanche	Hooper is not within the generalized Ogden area mountains avalanche zone.
	Landslide	There are insufficient slopes in or near Hooper which would cause landslides, therefore this hazard would have no impact.
	Problem Soils	No historic occurrences indicate that this hazard is unlikely to impact Hooper.
	Tornado	No historic occurrences indicate that this hazard is unlikely to impact Hooper.
Huntsville	Avalanche	There are no sloped areas in Huntsville Town large enough in which an avalanche is possible.
	Invasive Species	Limited past occurrences with recorded damages indicate this is not a threat.
	Landslide	Huntsville is predominantly flat with no sloped areas enough to pose a landslide risk. According to UT Department of Natural Resources (DNR), the risk is Very Low to the town.

Plan Participant Name	Hazard	Rationale for Omitting
	Problem Soils	No historic records of problem soils negatively impacting Huntsville indicate this hazard is not a threat to the town.
	Tornado	No historic records of tornadoes impacting Huntsville indicate this hazard is not a significant threat to the town. Neither tornado event previously recorded in Weber County were able to cross the mountains separating Huntsville from the rest of the incorporated jurisdictions.
Marriott–Slaterville	Avalanche	Marriott-Slaterville is not within the generalized Ogden area mountains avalanche zone. No impact. Avalanche would need to travel a minimum of 3.5 miles across mostly flat terrain to reach city boundaries.
	Extreme Cold	According to the CSIA, Extreme Cold is defined as "temperatures that are lower than historical averages to the point that it creates a dangerous environment for people, animals, and critical infrastructure. With average temperatures trending warmer, it would make sense that the annual number of extreme cold days will decrease. Due to no significant historic impacts and a projected decrease in the future, this is not a concern to Marriott-Slaterville.
	Landslide	Due to the location and topography of the community, there is no possibility of landslides occurring in or around Marriott-Slaterville. Per the UT DNR, the landslides susceptibility is very low.
	Thunderstorm	Thunderstorms periodically occur but have not had any adverse effect on the city. Without a history of negative impacts, this is not a hazard of concern for Marriott-Slaterville.
North Ogden	Avalanche	Low risk according to HVA (Appendix F). Where risk is present, critical facilities are not, per Figure 32: Critical Facilities in the Generalized Ogden Area Avalanche Zone by City. Without significant people or assets at risk for this hazard, avalanches are considered a natural part of the environment, not a hazard to profile.
	Dam Failure	Low risk according to HVA (Appendix F)
	Drought	Low risk according to HVA (Appendix F).
	Invasive Species	Low risk according to HVA (Appendix F).

Plan Participant Name	Hazard	Rationale for Omitting
	Problem Soils	Low risk according to HVA (Appendix F).
	Thunderstorm	Low risk according to HVA (Appendix F).
	Tornado	Low risk according to HVA (Appendix F).
Ogden	Avalanche	Not a major threat due to the terrain, vegetation temperature, and steepness of the slopes that surround Ogden. St. Joseph High School is the only critical facility in the mapped avalanche zone. However, further evaluation of the terrain has shown that nearby areas that have the potential for sliding/avalanche are at higher elevations and the slides will be captured by the lower elevations/valleys of the mountains that interface with the city. The potential for avalanches is in the canyon and back side of the mountains, which are the responsibility of the county and not Ogden City proper. Because of this, Ogden has not profiled this hazard, while the county has.
	Invasive Species	Not a high threat due to mitigation programs that help to combat invasive species. The majority of the invasive species in this area are in Weber County jurisdiction and not in Ogden City proper.
	Problem Soils	No historic records of negative impacts of this hazard on Ogden indicate this is not a hazard of concern to the city. Ogden maintains a watch list with a few areas, particularly landslide prone areas. Ogden has undertaken mitigation in these areas to help stabilize and prevent future issues.
Plain City	Avalanche	Plain City is not within the generalized Ogden area mountains avalanche zone.
	Drought	Would not consider being a direct threat. Already effectively mitigated by planning ahead for water storage as the community is located in a desert and adapted to environment. Plain City is very flat compared to other communities. The city is very close to the water table, making water easy to access and reducing the impacts of possible drought. Flooding is a more common issue than drought.

Plan Participant Name	Hazard	Rationale for Omitting
	Extreme Cold	We would not consider it a direct threat. The city has dealt with cold weather and does not feel it would be a hazard for a pre-disaster mitigation plan, as extreme cold does not impact the jurisdiction. There are sufficient mitigation measures in place and limited historic evidence of this hazard in Plain City, indicating it is not a current hazard of concern.
	Extreme Heat	We would not consider it being a direct threat because the city has dealt with heat, and extreme heat would not have an impact on our jurisdiction. There are sufficient mitigation measures in place and limited historic evidence of this hazard negatively impacting Plain City, indicating it is not a current hazard of concern. The public and built environment is well-situated to this hazard, with many local opportunities to get out of the heat and no reason to declare a disaster.
	Invasive Species	Would not consider being a direct threat.
	Landslide	Due to the location and topography of the community, there is no possibility of landslides occurring in or around Plain City. Per the UT DNR, the landslides susceptibility is very low.
	Thunderstorm	Would not consider being a direct threat.
	Wildfire	Would not consider being a direct threat.
	Winter Storm	Would not consider being a direct threat. The city has dealt with winter storms in the past and does not feel it would be a hazard for a pre-disaster mitigation plan. Extreme winter storms would not have an impact on our jurisdiction. Snowplow/snow removal crews are trained.
Riverdale	Avalanche	Riverdale is not within the generalized Ogden area mountains avalanche zone.
Roy	Avalanche	Roy is not within the generalized Ogden area mountains avalanche zone.
	Dam Failure	Dam failure would not directly impact Roy City facilities or infrastructure.

Plan Participant Name	Hazard	Rationale for Omitting
	Extreme Cold	Unlikely to negatively impact the community. Based on previous historical data, the community is used to the cold events that could occur.
	Landslide	Due to the location and topography of the community, there is no possibility of landslides occurring in or around Roy. Per the UT DNR, the landslides susceptibility is very low.
	Tornado	Unlikely event given limited past history.
	Wildfire	Minimal proximity to wildland fire areas.
South Ogden	Avalanche	South Ogden is not within the generalized Ogden area mountains avalanche zone.
	Dam Failure	South Ogden City would not be impacted based on the data outlined by the Bureau of Reclamation as the city is above the areas concerned.
Uintah	Avalanche	Not a notable concern given limited past impacts.
	Invasive Species	Not a notable concern given limited past impacts and occurrences.
	Problem Soils	Not a notable concern given limited past occurrences.
	Tornado	Not a notable concern given limited past impacts and occurrences.
Washington Terrace	Avalanche	Washington Terrace is not within the generalized Ogden area mountains avalanche zone.
	Dam Failure	Washington Terrace has no dam and is not in a dam failure deposition zone.
	Invasive Species	No agricultural areas and invasive species of note.
West Haven	Avalanche	West Haven is not within the generalized Ogden area mountains avalanche zone.

Plan Participant Name	Hazard	Rationale for Omitting
	Landslide	Due to the location and topography of the community, there is no possibility of landslides occurring in or around West Haven. Per the UT DNR, the landslides susceptibility is very low.
Ogden School District	Avalanche	None of our facilities are at risk of physical damage from avalanche, and education of avalanche danger is outside the purview of public education.
	Drought	None of our facilities are at risk of physical damage from drought, and education of drought danger is outside the purview of public education.
	Invasive Species	Not a notable concern given limited past impacts and occurrences.
	Problem Soils	None of our facilities are at risk of physical damage from problem soils, and education of problem soils danger is outside the purview of public education.
Hooper WID*	Avalanche	The Hooper WID is not within the generalized Ogden area mountains avalanche zone.
	Dam Failure	Hooper WID would not be impacted based on the data outlined by the Bureau of Reclamation as the Hooper WID is outside the areas concerned.
	Drought	Not considered a current threat to the water improvement district as current mitigation actions have addressed any imminent concerns.
	Extreme Heat	There is no history of extreme heat events negatively impacting Hooper WID.
	Extreme Cold	There is no history of extreme cold events negatively impacting Hooper WID.
	Flood	There is no history of flood events negatively impacting Hooper WID.
	Invasive Species	Our water comes from deep wells, there are no living species at that depth.
	Landslide	There are insufficient slopes in or near Hooper which would cause landslides, therefore this hazard would have no impact.

Plan Participant Name	Hazard	Rationale for Omitting
	Problem Soils	No historic occurrences of problem soils to indicate that this hazard is unlikely to impact Hooper WID.
	Thunderstorms	Hooper WID is at low risk of impact from thunderstorm according to the FEMA hazards map, the risk for thunderstorms is very low.
	Tornado	No historic occurrences indicate that this hazard is unlikely to impact Hooper WID.
	Wildfire	Hooper WID has minimal proximity to the wildland urban interface.
	Winter Storm	Hooper WID has dealt with winter storms in the past and does not consider it a hazard for a pre-disaster mitigation plan.
Pineview Water Systems*	Extreme Cold	Pineview Water Systems delivers secondary water from April 15 to Oct 15. During the off season, the district's system is completely empty. This hazard would not occur when the district is operating, and the district's systems are not at risk.
	Winter Storms	Pineview Water Systems are all buried underground and are not impacted by winter weather.
Roy Water Conservancy District	Avalanche	Not in mountainous area.
	Wildfire	Not in wildfire urban interface areas.
Taylor West Weber Water District	Avalanche	Taylor West Weber Water District is not within the generalized Ogden area mountains avalanche zone.
	Invasive Species	Taylor West Weber Water is a culinary drinking water provider. We receive water from deep in the ground or from a wholesale provider. Invasive species are out of the spectrum for affecting the drinking water.

Plan Participant Name	Hazard	Rationale for Omitting
	Landslide	Due to the location and topography of the district's service area, there is no possibility of landslides occurring in or around the Taylor West Weber Water District. Per the UT DNR, the landslides susceptibility is very low.
Weber-Morgan Health Department	Avalanche	Weber Morgan Health Department is not in the generalized Ogden area mountains avalanche zone.
	Problems Soils	No historic occurrences indicate that this hazard is unlikely to impact the facilities of the health department.
West Warren–Warren WID*	Avalanche	West Warren-Warren WID is not within the generalized Ogden area mountains avalanche zone.
	Dam Failure	The district is not located near a dam.
	Landslide	Due to the location and topography of the district's service area, there is no possibility of landslides occurring in or around the West Warren-Warren WID. Per the UT DNR, the landslides susceptibility is very low.
Central Weber Sewer Improvement District	Avalanche	Not within the generalized Ogden area mountains avalanche zone. All of the District's facilities are located in the middle of a valley miles from the mountains.
	Dam Failure	All of the district's facilities are not located near a dam inundation area.
	Drought	Not considered a significant threat for the sewer district as the district is a wastewater treatment facility that only is required to treat domestic wastewater that is received. Secondary water sources, which could be impacted by drought, are not utilized for the district's services.

Plan Participant Name	Hazard	Rationale for Omitting
	Extreme Cold	The district's facilities are constructed according to standards that protect against freezing and extreme cold therefore, this hazard will not affect operation.
	Extreme Heat	Will not affect operation. The district facilities are constructed according to standards that protect against extreme temperatures.
	Invasive Species	The district consists of a wastewater treatment facility that would not be affected by invasive species due to effective process structures.
Weber Fire District	Problem Soils	No previous history of this negatively impacting the Weber Fire District's service area indicates this would not be a risk for the district.
North View Fire District	Avalanche	Relatively Moderate according to HVA. Data was obtained from the FEMA hazards map. According to the FEMA hazards map, the risk for Avalanche is Relatively Moderate.
	Dam Failure	Low risk according to HVA. Data was obtained from the FEMA hazards map. According to the FEMA hazards map, the risk for Riverine Flooding is Very Low. Further, North View Fire District is not located geographically near a Dam.
	Drought	Low risk according to HVA. Data was obtained from the FEMA hazards map. According to the FEMA hazards map, the risk for Drought is Very Low.
	Invasive Species	Low risk according to HVA. North View Fire District is not involved with invasive species.
	Problem Soils	Low risk according to HVA. North View Fire District is not involved with Problem Soils.

Plan Participant Name	Hazard	Rationale for Omitting
	Thunderstorm	Low risk according to HVA. Data was obtained from the FEMA hazards map. According to the FEMA hazards map, the risk for Thunderstorms is Very Low.
	Tornado	Low risk according to HVA. Data was obtained from the FEMA hazards map. According to the FEMA hazards map, the risk for Tornado is Very Low.

Each jurisdiction also used the forms to identify specific community assets, including structures, populations, systems, the environment, and the economy that are at risk from each hazard. Participants also described developments, such as changes in population, land use, and climate conditions that could affect their vulnerability to each of the hazards they identified.

The consultant conducted a review of past hazard events. This involved examining historical records of hazards that affected the County and/or the cities, such as the National Centers for Environmental Information (NCEI) Storm Events Database. The information was gathered from local, state, and federal agencies; accounts from organizations, newspapers, and other local media; state and local weather records; conversations with the public and local officials; surveys; and meetings with key personnel in the planning area. Information about federal and state disaster declarations in Weber County and declarations from other sources was compiled in tables in each hazard profile. A brief description of other significant events that have affected the County also was included. Disaster declarations and descriptions of historical events provided a baseline for the hazard prioritization process.

Based on hazard assessments, IEM developed hazard profiles for each hazard, including each jurisdiction's vulnerability to specific hazards. This assessment identified critical facilities and infrastructure and other assets that may be affected and included potential loss estimates when available. The profiles also described land uses and development trends to inform future land use policy and decisions, and they described how potential climate adaption may impact a jurisdiction's current and future vulnerability to each hazard.

Data Collection

HAZARD MAPPING

To conduct a vulnerability analysis, access to data from several sources is required, including sources that identify locations and extents of hazards that threaten the planning region and the structures or other assets that would be at risk to these hazards. Information on hazards included a review of maps and GIS data from local, state, and federal agencies. Table 18 lists the data sources.

Table 18: GIS Data Sources

Data Source/ Owner	Information Used
Client (from prior draft plan)	Historic earthquake epicenters, dam locations, building points, PDM survey results, historic fire perimeters and their buffers, FEMA flood zones, drainage basin boundaries, distance from quaternary faults, distance from epicenters, dam inundation boundaries, county boundaries, landslides, airports, and public buildings

Data Source/ Owner	Information Used
FEMA Map Service Center	Flood zones
Hazus/HIFLD*	Critical facilities and other infrastructure data used in Hazus loss estimates.
National Interagency Fire Center	Historic wildfire perimeters
NOAA	Historic tornado points, historic tornado paths, historic wind event points, historic wind event paths,
Ogden School District (SD)	Boundaries of Ogden Elementary, Ogden Junior High, and Ogden High School
US Army Corps of Engineers	Dam locations
US Forest Service	Invasive plants
US Geological Survey	Historic landslide areas, historic landslide points, waterbodies, Great Salt Lake, watersheds, earthquakes
Utah Avalanche Center	Historic avalanche locations and zones
Utah Forestry Fire and State Lands	Wildfire risk
Utah Geospatial Resource Center	Higher education schools, Ogden schools, schools pre k-12, child care centers, Utah counties, alluvial fans, dam inundation areas
Weber County	Hospitals, libraries, Bona Vista Water Improvement District, Central Weber Sewer District, city and town boundaries, fire zones, Hooper Water District, parcels, Pineview Water South Ogden Boundaries, Pineview Water Weber Box Elder Boundaries, surrounding counties, Taylor–West Weber Boundaries, unincorporated land, Warren–West Warren Water Boundaries, wild urban interface, county centerlines
Weber SD	Boundaries of Weber Elementary, Weber Junior High, and Weber High School

*Hazus = FEMA risk modeling software; HIFLD = Homeland Infrastructure Foundation-Level Data

This study used asset data from the County and cities to provide a snapshot of the impacts of natural hazards on the assets. The term "asset data" refers to critical infrastructure in the county and cities, such as utilities, owned facilities, bridges, schools, and other community facilities that are necessary for residents. Where local data were not available, state or federal data sources were consulted. Figure 24–Figure 28 show the locations of critical facilities in the participating jurisdictions.

For economic and building loss estimates for earthquakes and floods, default inventory data from Hazus 6.1 was used. The facility data in Hazus are from the Homeland Infrastructure Foundation-Level Data (HIFLD). Default Hazus inventory for critical facilities was augmented with local data, where available. More details on Hazus are provided in the section on Potential Loss Estimates.

Roy Water Conservancy District was added as a planning partner later in the plan update process. Maps were developed prior to their inclusion, but they are still represented throughout the plan in narrative format.

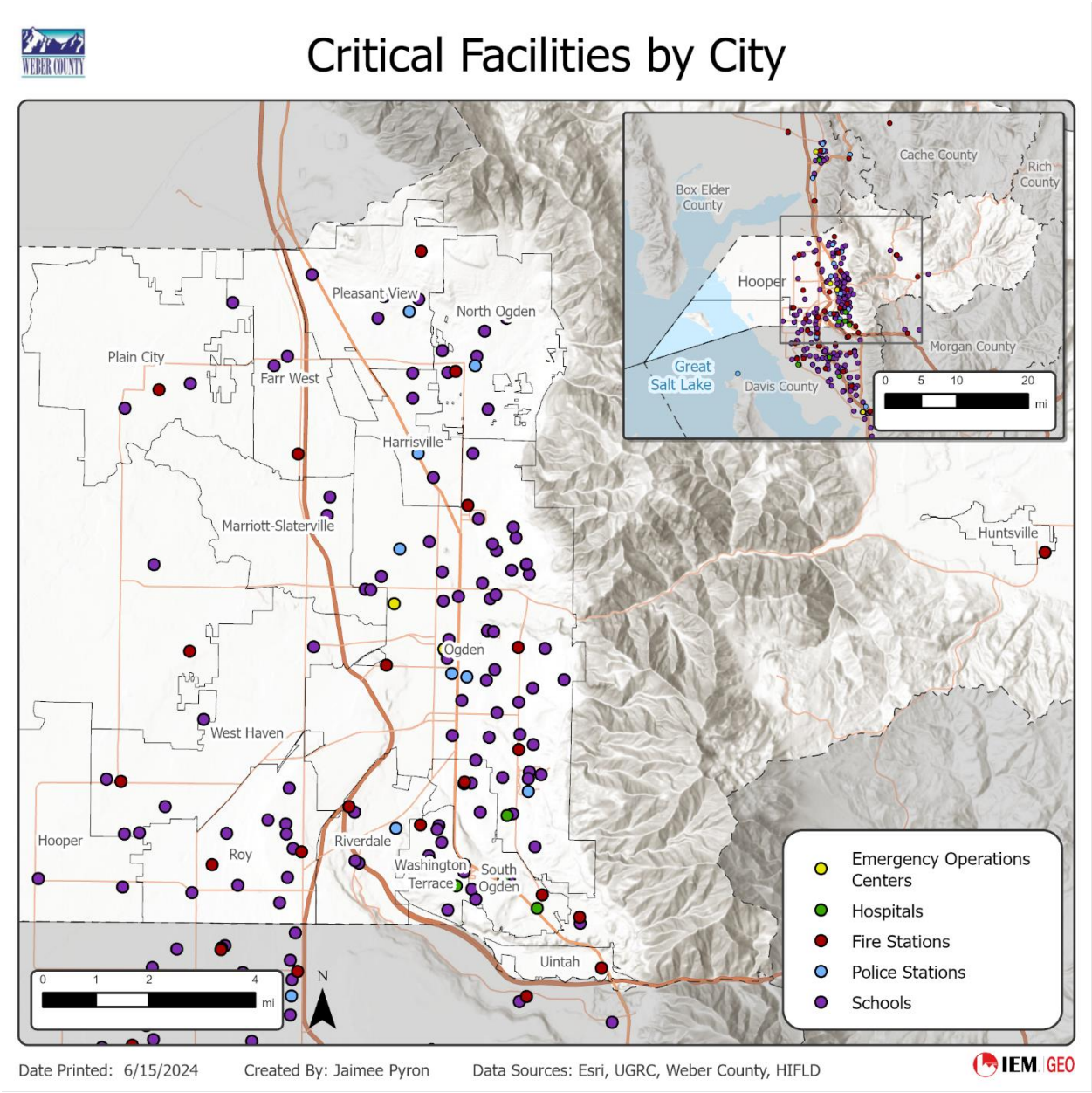


Figure 24: Critical Facilities in Weber County and Participating Cities

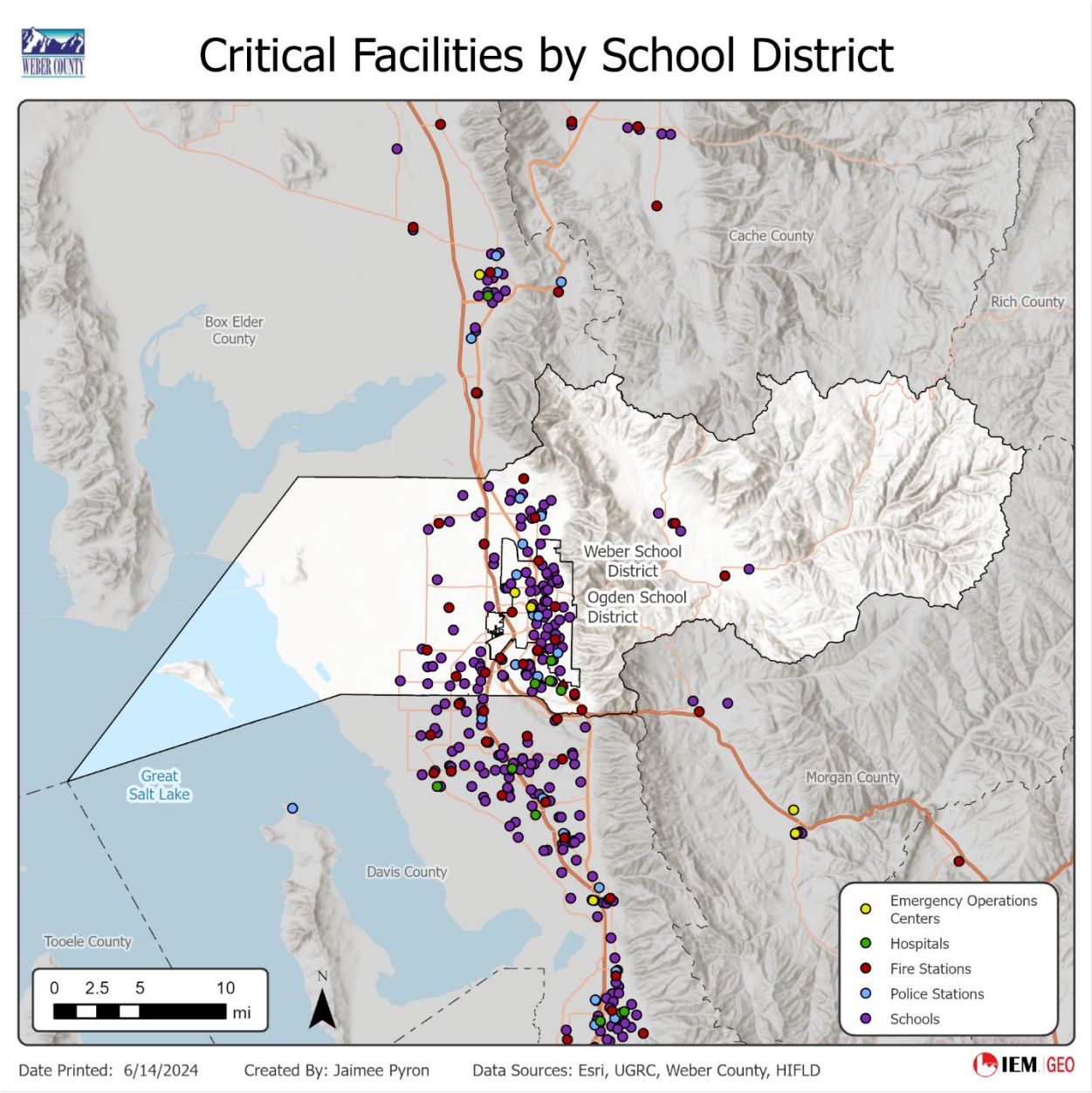


Figure 25: Critical Facilities in Participating School Districts

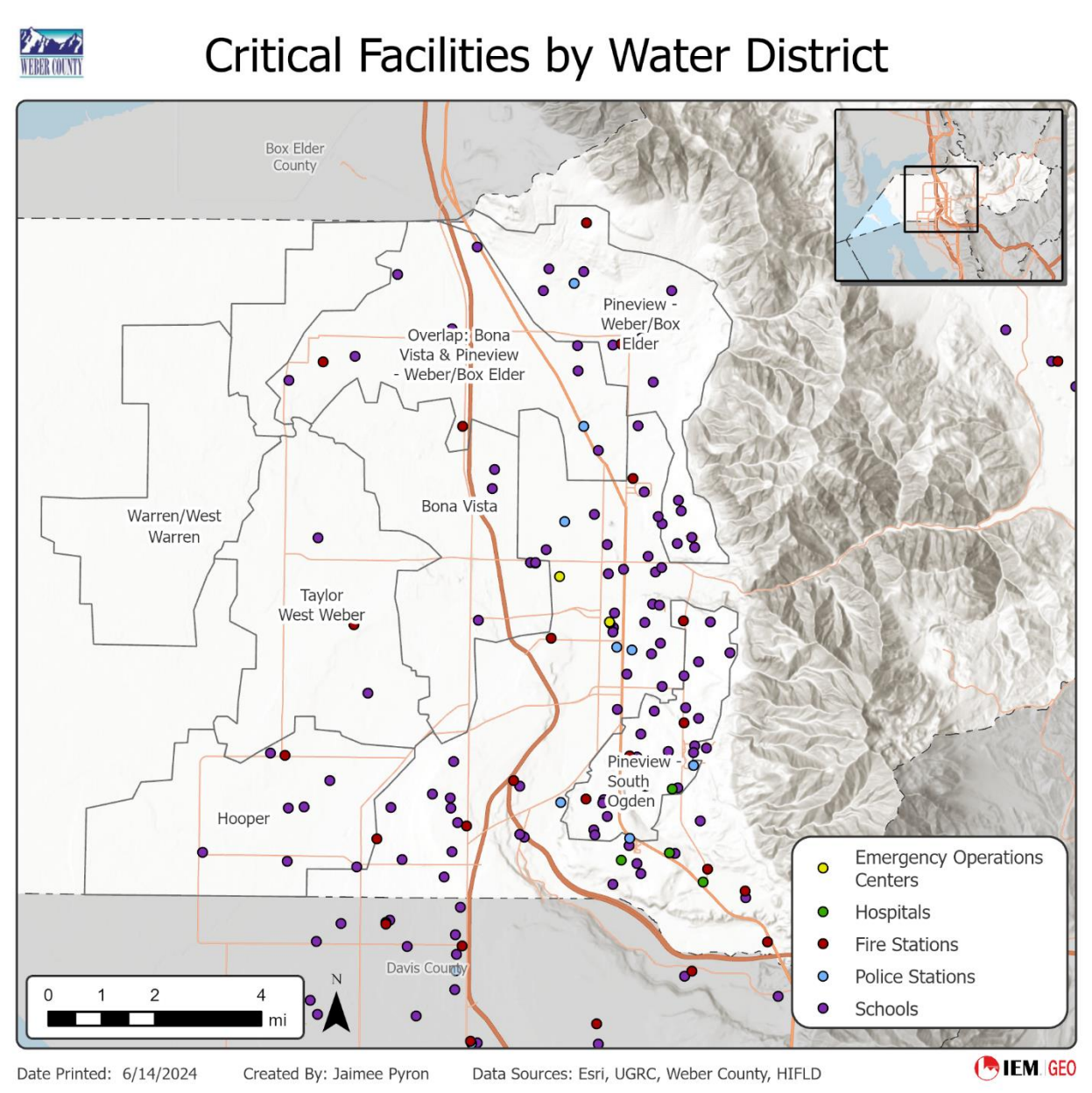


Figure 26: Critical facilities in participating water districts

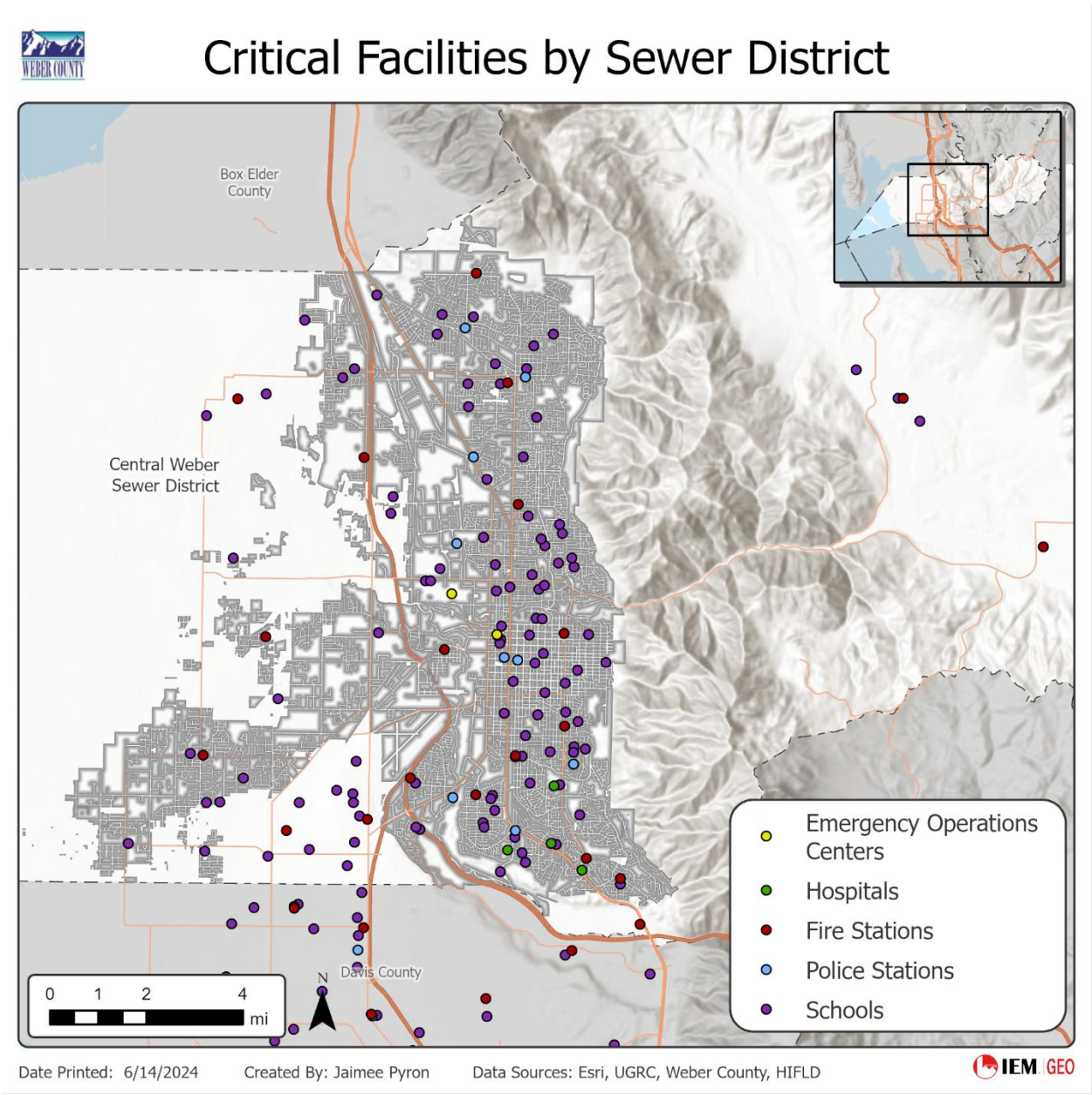


Figure 27: Critical Facilities in Participating Sewer District

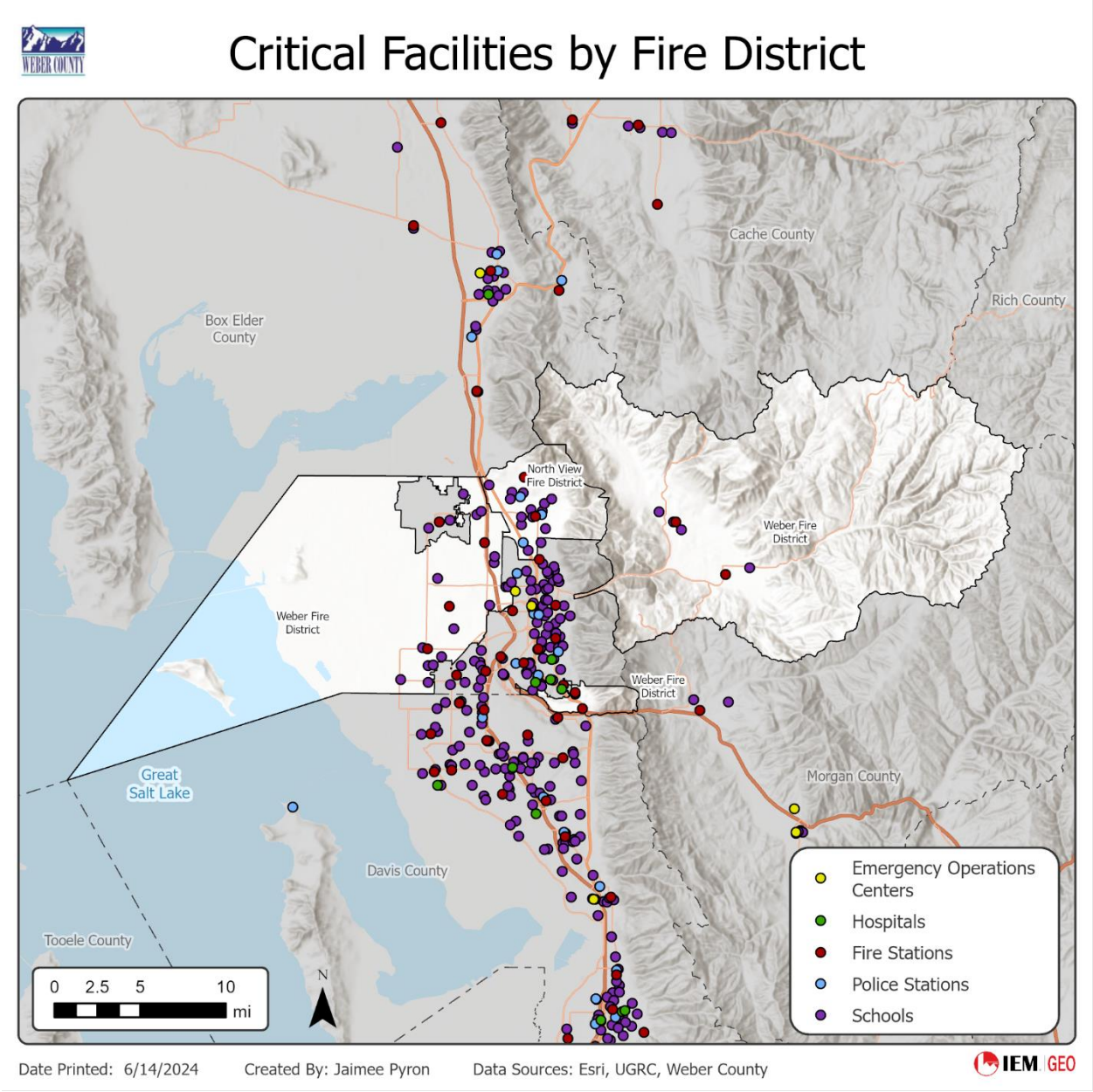


Figure 28: Critical Facilities in Participating Fire Districts

Hazard-Specific Profiles and Risk Assessments

The following sections profile each hazard identified in the analysis and assesses the associated risks. Each risk assessment considers the following attributes:

- **Hazard Description:** A brief introduction to the mechanisms behind the hazard.
- **Location:** An indication of geographic areas that are most likely to experience the hazard.

- **Magnitude/Extent:** A description of the potential magnitude and extent of the hazard, accompanied by the likelihood of the hazard occurring (or a timeframe of recurrence, if available).
- **Previous Occurrences/History:** Similar to Location, a chronological highlight of recent occurrences of the hazard accompanied by an extent or damage cost, if available.
- **Probability of future occurrences:** Likelihood of this type of event occurring in Washoe County, based on return intervals or past annual frequency. When applicable, a brief overview indicates ways in which the hazard profile may change over time due to a changing climate.
- **Vulnerability Analysis:** a description of which assets, including structures, systems, populations and other assets as defined by the plan participant are at risk from each hazard. Vulnerability may be expressed in quantitative (such as replacement cost) or qualitative value (such as type of structure), depending on available data.
- **Impacts**: Impacts are the potential consequences of a hazard event occurring. This includes the effects of climate change, changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development.
- **Development Trends:** Economic changes, land use, or other changing conditions and how these trends impact on County's vulnerability to each hazard since the 2020 plan development (increased, decreased, unchanged).
- **Secondary Hazards/Cascading Impacts:** A brief overview of secondary hazards often associated with the hazards.

ASSET IDENTIFICATION

A vulnerability assessment offers a detailed representation of the losses that a community may incur in the event of a disaster. This is particularly valuable for county and city personnel and other decision makers who must balance the costs of mitigation with the potential harm to residents and property. The assessment provides a standardized method to measure a community's exposure to natural hazards and helps identify which hazards and regions should be prioritized for disaster resilience efforts. Based on evaluating the assets at risk, hazard mitigation resources can be allocated where they are most needed, using the information in the hazard profiles.

To be effective, hazard mitigation analysts must include both quantitative and qualitative information. Quantitative data are obtained through an exposure analysis that provides the number of assets at risk of a particular hazard. For hazards that lack measurable data, qualitative data help describe how a hazard could impact the region, offering insights beyond the numbers of assets at risk. By combining these types of data, analysts can gain a comprehensive understanding of the risks associated with each hazard and develop appropriate mitigation strategies.

The hazard exposure analysis was developed using the most reliable and up-to-date data available and adheres to the methodology outlined in FEMA Local Mitigation Planning Handbook, May 2023. This guidebook provides a comprehensive framework for identifying and evaluating hazards, estimating

potential losses, and developing strategies for mitigating risks. The analysis was conducted with the utmost precision and rigor to ensure its validity and accuracy.

A comprehensive vulnerability assessment was conducted for each of the hazards delineated in this Chapter. Geospatial data were indispensable in determining the assets exposed to specific hazards. Geospatial analysis can be conducted by overlaying the natural hazard's spatial footprint on a map of people and assets. Notably, Weber County's hazards, including floods, wildfires, earthquakes, and landslides, have known geographic areas of probable occurrence. Spatial information on these hazards is crucial in determining the areas of exposure and vulnerability of the assets. For other hazards, maps of past occurrences can provide a reference for general risk in the planning area.

POTENTIAL LOSS ESTIMATES

Hazus is a nationally standardized risk modeling methodology that can be used to estimate potential damage, economic loss, and social impacts from earthquakes, floods, tsunamis, and hurricanes. The Hazus software, built on Esri ArcGIS for Desktop technology, includes nationwide general GIS datasets, and a model for each of the four natural hazards below. The model results can support the risk assessment portion of mitigation planning.

The models estimate the amount of damage that could be expected for different building occupancies, critical facilities, transportation systems, and utilities from these events. Hazus is packaged with datasets that include baseline building and infrastructure inventories for the entire United States. The basic level of analysis uses only the baseline databases built into the Hazus software and methodology for building area and value, population characteristics, costs of building repair, and certain basic economic data. Outputs from Hazus include estimates of direct physical damage to buildings, essential facilities, and transportation and utility systems; induced damage, such as debris generated; indirect losses because of business interruption; and social impacts, such as displaced households and sheltering needs. Results from an analysis using only baseline inventory can be greatly improved with at least a minimum amount of locally developed input.

For this plan update, Hazus 6.1 was used to estimate potential losses for three hazard scenarios: a 100-year flood, a 500-year flood, and a M7.2 scenario earthquake based on the Weber Section of the Wasatch Fault. Local data for essential facilities, such as fire stations, police stations, hospitals, Emergency Operations Centers (EOCs), schools, and airports, were cross-referenced with the baseline Hazus data, and where practicable the local data was integrated to improve the accuracy of results, known as a Level 2 analysis.

CALCULATING PROBABILITY

Table 19: Definitions of the Probability of Future Events

Level	Description
Unlikely	Less than 1% annual probability

Level	Description
Possible	Between 1% & 49.9% annual probability
Likely	Between 50% & 90% annual probability
Highly Likely	Greater than 90% annual probability

NATIONAL RISK INDEX

References to the National Risk Index are made throughout the plan. The National Risk Index is an online dataset developed by FEMA and its partners that defines a base line understanding of risk for all communities across the United States. This interactive online tool is utilized to compare the risks across the countywide planning area when compared with the rest of the United States in terms of expected annual loss, social vulnerability, and community resilience. Figure 29 reflects how these three factors contribute to a composite score. Each hazard has different datasets where this data is pulled from. Dollars are in terms of 2022 dollars. Photos are taken directly from the NRI.

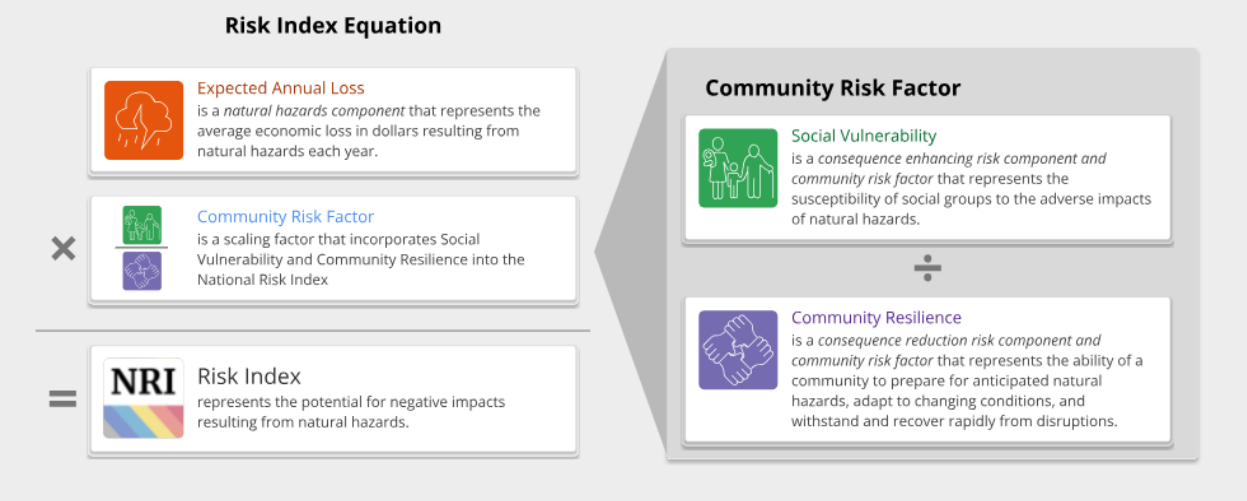


Figure 29: FEMA National Risk Index Equation

Ratings are described using qualitative terms ranging from "Very Low" or "Very High." There are no specific numeric values that determine the rating as scores are relative.[42] The following define the NRI categories at a national level:

- Very High: 80th to 100th percentiles
- Relatively High: 60th to 80th percentiles

[42] FEMA, "National Risk Index." https://www.fema.gov/sites/default/files/documents/fema_national-risk-index_technical-documentation.pdf

- Relatively Moderate: 40th to 60th percentiles
- Relatively Low: 20th to 40th percentiles
- Very Low: 0th to 20th percentiles

Ratings also do not always reflect the local experience, including in Weber County. However, this tool can serve as a baseline to understand risk and differences in risk between Weber County, the plan participants, and the rest of the United States.

Avalanche

An avalanche is a natural disaster caused when a mass of snow, ice, or rock suddenly slides down a mountainside or slope. Avalanches can be triggered by a combination of factors, including heavy snowfall accumulating on unstable slopes; strong winds depositing snow on leeward slopes; rain infiltrating the snowpack; warming temperatures leading to snowpack destabilization; seismic activity, such as earthquakes; and human activity like snowmobiling and skiing. Avalanches are incredibly dangerous and destructive, as they can bury buildings, vehicles, and people under massive amounts of snow and debris, making rescue and recovery efforts extremely challenging.

The cohesion between individual layers in a snowpack can be fragile. When melted snow refreezes, it can form a slick layer of ice on the surface, which may prevent new snow from sticking and cause it to slide off. As the snow begins to thaw in the spring, melted water can permeate the layers, creating slippery surfaces below. With additional pressure or vibrations, the upper layers of the snowpack can easily slide downhill.

An avalanche is triggered by the sudden rupture and release of an unstable mass of snow from a steep slope or mountainside. As it cascades downhill, the mass of snow rapidly gains velocity, generating a powerful and turbulent flow of snow and icy particles that are forcefully propelled into the air. This phenomenon can be incredibly forceful and potentially dangerous. The mass picks up even more snow as it rushes downhill, and a big avalanche can weigh up to a million tons and move at speeds of over 200 miles per hour.[43]

[43] National Geographic, "Avalanche." https://education.nationalgeographic.org/resource/avalanche/

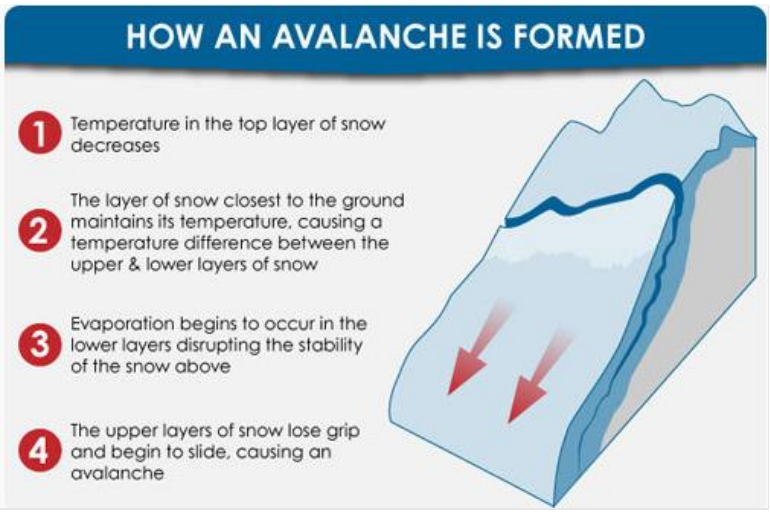


Figure 30: Avalanche Formation[44]

Snow avalanches come in two main categories: sluffs and slabs. Sluffs occur when the top layer of snow is weak, leading to a minor slide of powdery snow. They are less hazardous than slab avalanches, which occur when a weak layer deeper in the snowpack is triggered, causing snow to descend as a massive block. This block can disintegrate into smaller pieces, creating a fast-moving cloud of icy particles as it races downhill.

With their rapid speed and immense force, thick, powerful slab avalanches pose a significant threat to skiers, snowboarders, mountaineers, and hikers. In the western United States, an estimated 100,000 avalanches occur annually. In Weber County, they are most likely near Ogden and Uintah. These natural disasters claim over 28 lives in the United States each year, with snowmobilers, skiers, and snowboarders comprising most of the victims. Asphyxia is the main cause of death in avalanches, with trauma often the immediate cause of death.[45]

Location

Avalanches are a common occurrence in the mountainous regions of Utah, particularly in the northern and central parts of the state. Weber County is one area most susceptible to avalanches, especially in the mountainous regions around the Snowbasin and Powder Mountain resorts. The jurisdictions closest to these resorts include Ogden, Huntsville, and Uintah. These areas are popular for winter sports and recreational activities, but it is important to be aware of the risks and to take appropriate precautions when venturing into the backcountry. Figure 31 shows the areas of concern for avalanches in Utah, and Figure 32 through Figure 36 show critical facilities in various categories of location.

[44] Kidz World, "Avalanches and Snow Slides." https://www.kidzworld.com/article/2017-avalanches-and-snow-slides/
[45] SFU Avalanche Research Program, "Patterns of Death Among Avalanche Fatalities: a 21-Year Review." https://www.avalancheresearch.ca/wp-content/uploads/2017/06/2009_CMAJ_BoydOthers.pdf



Figure 31: Utah Avalanche Zones[46]

[46] Utah Department of Public Safety, "Avalanche." https://hazards.utah.gov/avalanche/

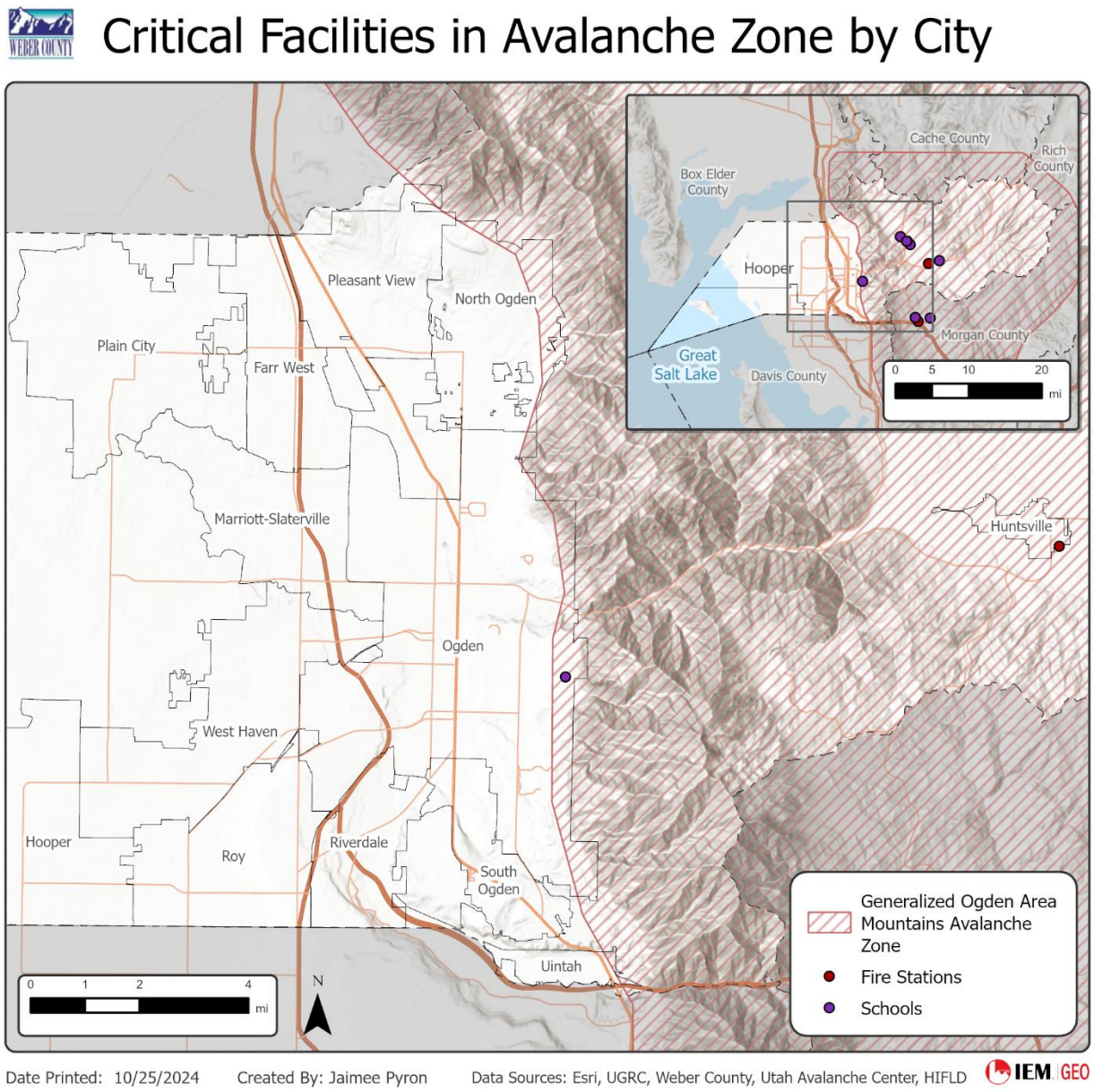


Figure 32: Critical Facilities in the Generalized Ogden Area Avalanche Zone by City

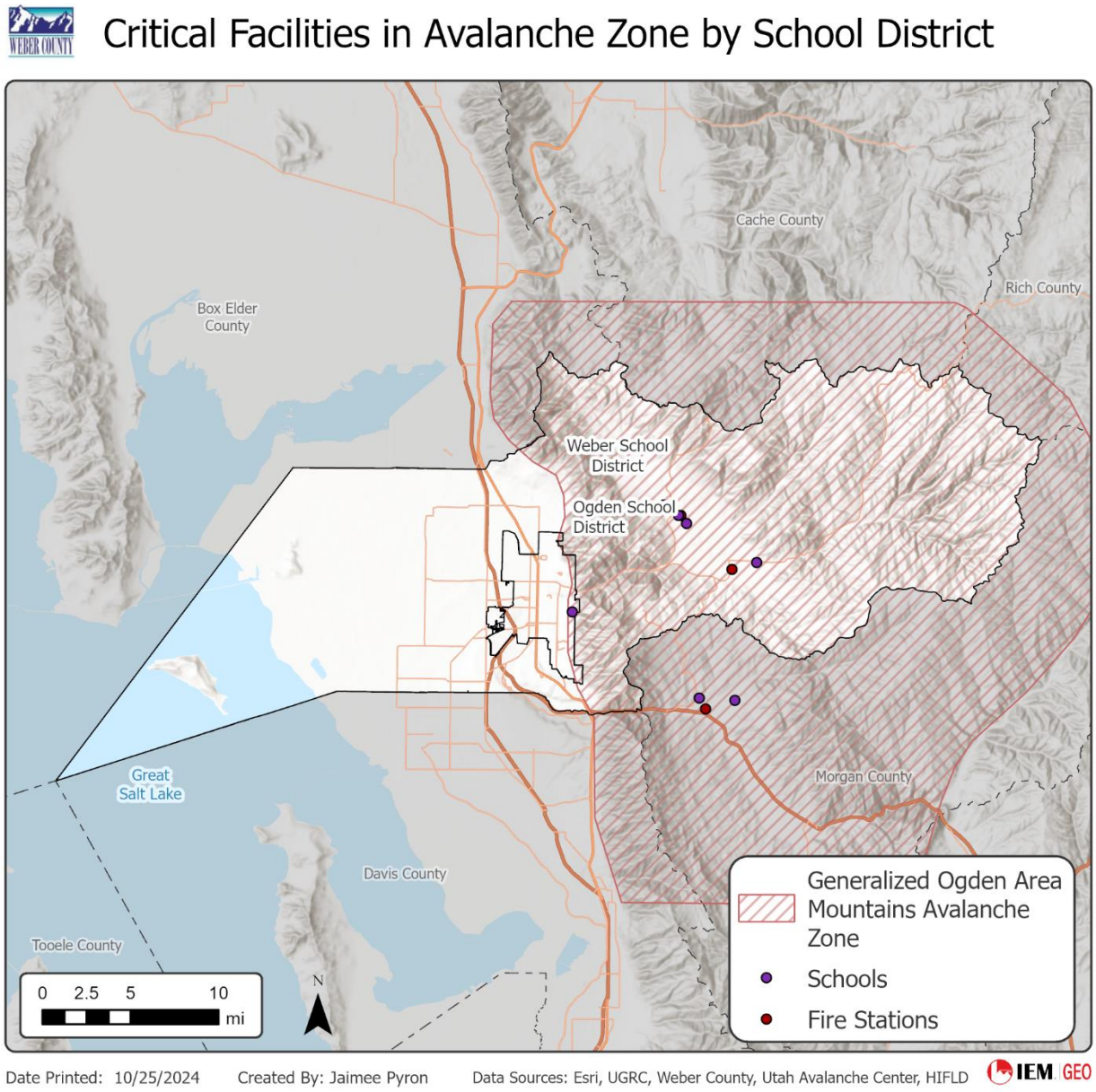


Figure 33: Critical Facilities in the Generalized Ogden Area Avalanche Zone by School District

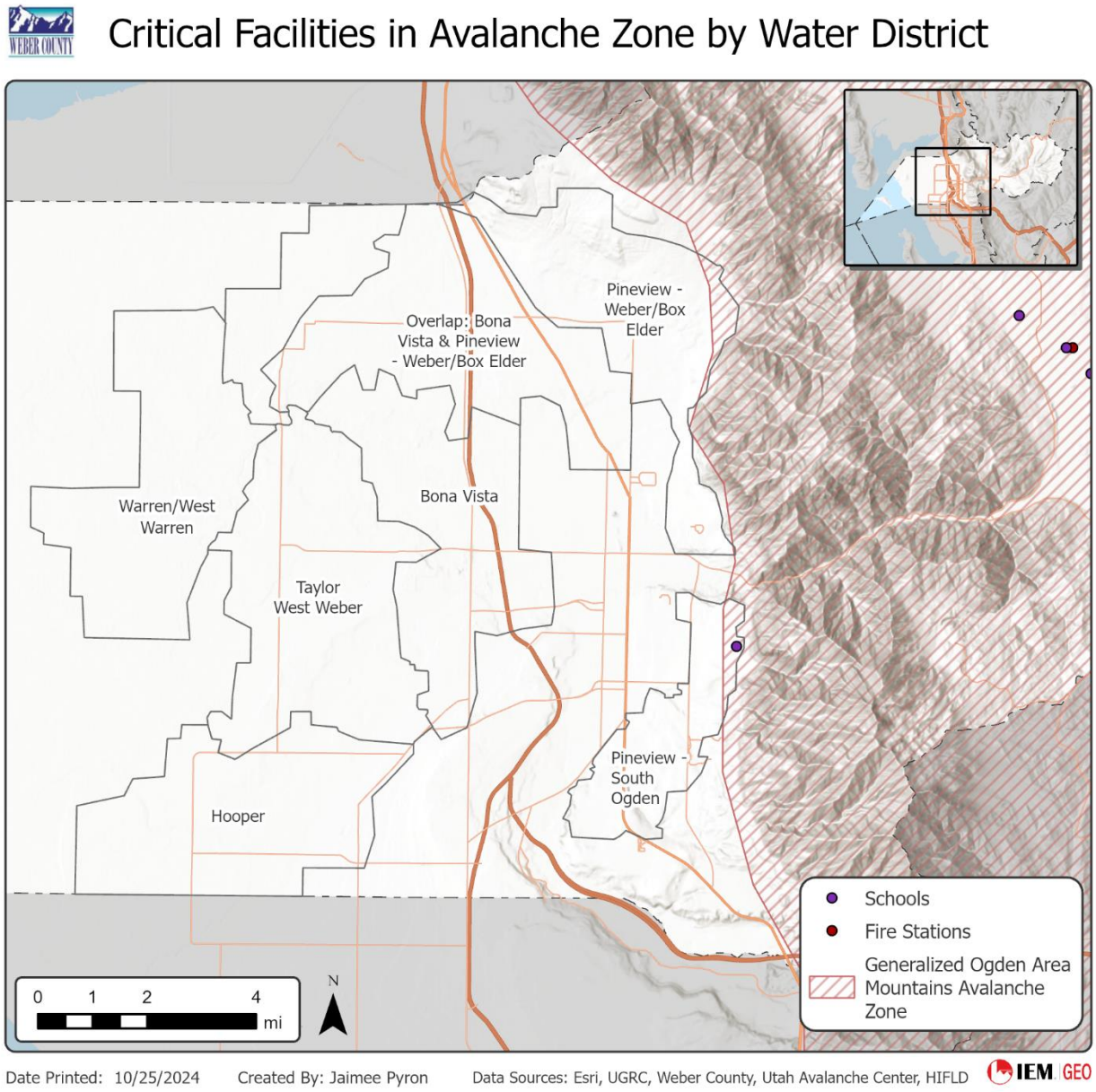


Figure 34: Critical Facilities in the Generalized Ogden Area Avalanche Zone by Water District

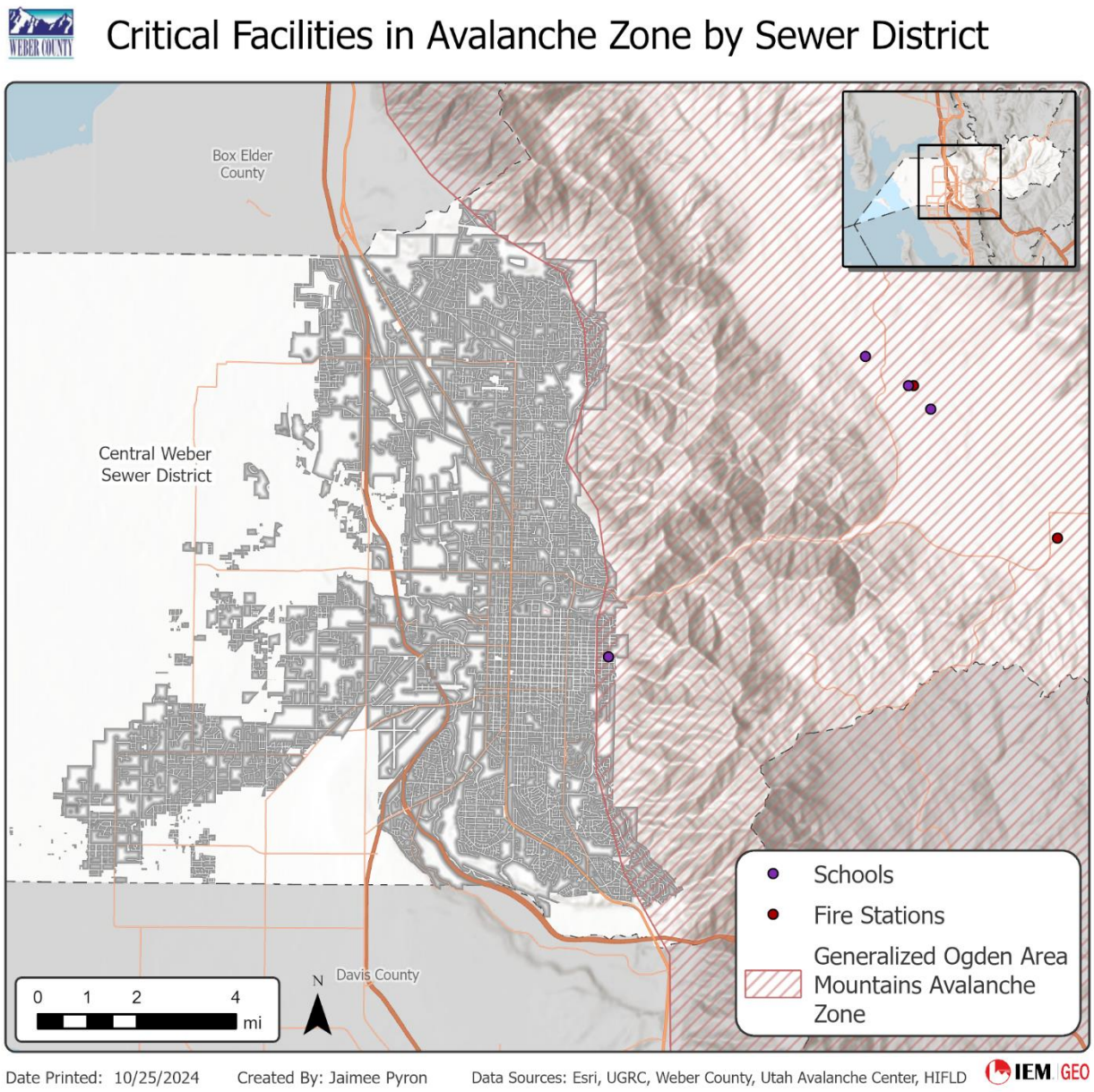


Figure 35: Critical Facilities in the Generalized Ogden Area Avalanche Zone by Sewer District

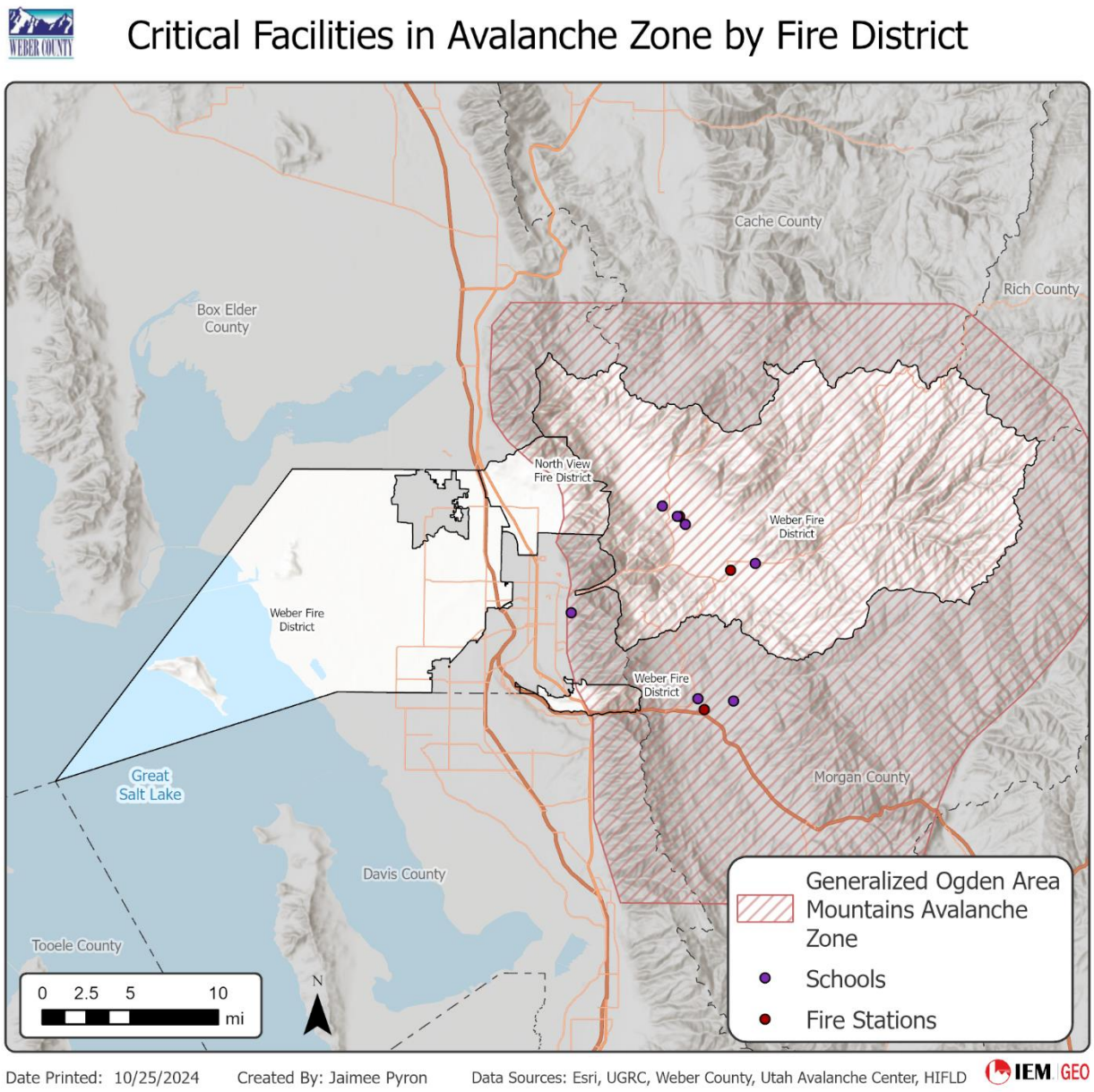


Figure 36: Critical Facilities in the Generalized Ogden Area Avalanche Zone by Fire District

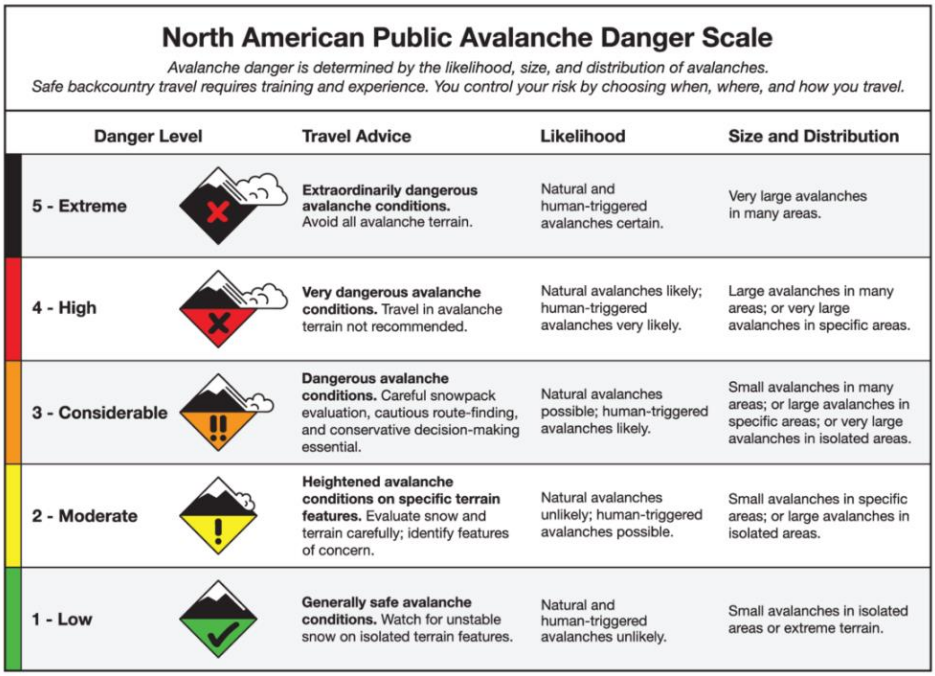
Magnitude/Extent

The extent of an avalanche is typically measured by its size, which can range from small to large. The size of an avalanche is often determined by the amount of snow involved and the area it covers. The extent of the damage caused by an avalanche can also be used to determine its size, as larger avalanches generally cause more damage. It is difficult to determine the exact amount of damage that an avalanche in Weber County could cause without knowing the specific location and circumstances. The potential severity of an avalanche largely depends on the amount of snow, the slope angle, and other factors, such as temperature, wind, and precipitation.

Avalanche professionals and researchers use various methods to determine the severity of an avalanche. These methods include the following:

1. Using snow stakes and measuring tapes to measure the depth of avalanche debris.
2. Using GPS to measure the extent of the avalanche, including the starting and stopping points.
3. Using drones to capture aerial footage of the avalanche and its aftermath.
4. Conducting on-site investigations to determine the cause and extent of the avalanche.
5. Using remote cameras to monitor avalanche-prone areas and record any avalanches.

The North American Public Avalanche Danger Scale in Figure 37 is a five level scale used to determine the extent of an avalanche.



North American Public Avalanche Danger Scale

Avalanche danger is determined by the likelihood, size, and distribution of avalanches.
Safe backcountry travel requires training and experience. You control your risk by choosing when, where, and how you travel.

Danger Level	Travel Advice	Likelihood	Size and Distribution
5 - Extreme	**Extraordinarily dangerous avalanche conditions.** Avoid all avalanche terrain.	Natural and human-triggered avalanches certain.	Very large avalanches in many areas.
4 - High	**Very dangerous avalanche conditions.** Travel in avalanche terrain not recommended.	Natural avalanches likely; human-triggered avalanches very likely.	Large avalanches in many areas; or very large avalanches in specific areas.
3 - Considerable	**Dangerous avalanche conditions.** Careful snowpack evaluation, cautious route-finding, and conservative decision-making essential.	Natural avalanches possible; human-triggered avalanches likely.	Small avalanches in many areas; or large avalanches in specific areas; or very large avalanches in isolated areas.
2 - Moderate	**Heightened avalanche conditions on specific terrain features.** Evaluate snow and terrain carefully; identify features of concern.	Natural avalanches unlikely; human-triggered avalanches possible.	Small avalanches in specific areas; or large avalanches in isolated areas.
1 - Low	**Generally safe avalanche conditions.** Watch for unstable snow on isolated terrain features.	Natural and human-triggered avalanches unlikely.	Small avalanches in isolated areas or extreme terrain.

Figure 37: North American Public Avalanche Danger Scale – Avalanche Rating Codes[47]

The North American Public Avalanche Danger Scale (NAPADS) is a system that rates avalanche danger and provides general travel advice based on the likelihood, size, and distribution of expected avalanches. It consists of five levels, from least to highest amount of danger: 1 – Low, 2 – Moderate, 3 – Considerable, 4 – High, 5 – Extreme. Danger ratings are typically provided for three distinct elevation bands. Although the danger ratings are assigned numerical levels, the danger increases exponentially between levels. In other words, the hazard rises more dramatically as it ascends toward the higher levels on the scale.[48]

[47] Thompsonpass.com, "Avalanche Size Ratings." http://thompsonpass.com/avalanche-size-ratings/
[48] North American Public Avalanche Danger Scale. Avalanche.org » North American Public Avalanche Danger Scale.

Avalanche risk is limited to the mountainous area in the eastern portion of the county and only affects Weber County, Pleasant View, Pineview Water Systems, Weber School District, and Weber Fire District.

Previous Occurrences

Based on the FEMA Disaster Declarations Database, Weber County has received no designation for avalanche disaster declarations since the last plan update.

The Ogden region has had 350 avalanches between January 16, 2016, and April 20, 2024.[49] Additional avalanches in Weber County are addressed in Table 20, followed by descriptions of more recent avalanches with notable impacts.

[49] Utah Avalanche Center, "Avalanches." https://utahavalanchecenter.org/avalanches/ogden?fodv%5Bmin%5D%5Bdate%5D=01/01/2016&fodv%5Bmax%5D%5Bdate%5D=04/22/2024

Table 20: Data on Avalanches in Weber County, Utah[50]

Location	Date	Deaths	Injuries	Property Damage	Crop Damage	Description
Wasatch Mountains I-80 North	03/04/2015	1	0	2	2	Following the snowfall of the first three days of March, a snowboarder was caught and killed in Hells Canyon, just outside Snowbasin Resort.
Wasatch Mountains I-80 North	04/04/2010	1	0	0	0	A snowmobiler was killed in an avalanche that he triggered while traveling along a ridge. He fell over a cliff band and was buried under debris. Despite being located by his partner with a beacon and taken away by helicopter, he was pronounced dead an hour later.
Wasatch Mountains I-80 North	01/24/2010	1	0	0	0	A skier was caught, carried, and killed in Hells Canyon, in the Snowbasin backcountry.
Wasatch Mountains I-80 North	02/18/2007	1	0	0	0	A human-triggered avalanche in Hells Canyon near Snowbasin killed a 17-year-old male skier. The avalanche initiated around 8,500 feet on a north-northeast-facing slope about 35–45 degrees in steepness. It descended about 1,500 vertical feet. The

[50] National Centers for Environmental Information, "Storm Events Database." https://www.ncdc.noaa.gov/stormevents/listevents.jsp?sort=DN&statefips=49%2CUTAH&county=WEBER%3A57&eventType=%28Z%29+Avalanche&beginDate_yyyy=2016&beginDate_mm=01&beginDate_dd=01&endDate_yyyy=2024&endDate_mm=01&endDate_dd=31

Location	Date	Deaths	Injuries	Property Damage	Crop Damage	Description
						10–12-feet-deep debris pile was 600 feet long and 60 feet wide.
Rich/Cache T NW/P E C Weber/most of Morgan/ NW Summit/NE Salt Lake/X NE Box Elder	03/11/2006	1	0	0	0	A series of cold wintery storm systems moved across Utah during the period. An avalanche on the 11th claimed the life of a snowboarder caught in the slide in Taylor Canyon on Mount Ogden. Snowfall totals for the period were significant in various areas across the state.
NE Box Elder T X NE/W Weber/Davis	01/01/2005	1	0	0	0	Preston Neiderhauser, 26, from Davis County was caught in an avalanche in Hells Canyon near the Snowbasin Ski Resort. He was downhill skiing in an out-of-bounds area with four friends, triggering the slide. Neiderhauser escaped with cuts and bruises and no major injuries.
Rich/Cache T NW/P E C Weber/most of Morgan/NW Summit/NE Salt Lake/X NE Box Elder	02/27/2000	0	1	0	0	A ski patroller from Snowbasin was seriously injured in an avalanche in a closed area of Snowbasin. The man was doing routine checks of the Mt. Ogden flank inbounds when a slab of wind-blown snow 200 feet wide slid 300 feet down the mountain. He rode out the slide but was slammed into a tree, breaking some ribs and his jaw and causing other internal injuries.

Location	Date	Deaths	Injuries	Property Damage	Crop Damage	Description
Rich/Cache T NW/P E C We-ber/most of Morgan/NW Summit/NE Salt Lake/X NE Box Elder	02/25/2000	0	2	0	0	An avalanche at Snowbasin Resort in the Strawberry Bowl area buried two skiers and partially buried three others. Thankfully, all were rescued with minor injuries.

- **01/18/2020:** Chase Adams and his father were caught in an avalanche while riding in Farmington Canyon. Chase was fully buried and killed on a slope above Farmington Lakes. Despite deploying his avalanche airbag, he was carried away and buried. His father called 911, while others in the area helped search for him. Davis County Search and Rescue personnel arrived 39 minutes after the call, and it took approximately 50 minutes to reach Chase's airway and clear it of snow. It took at least another 20 minutes to extricate him fully.[51]
- **03/04/2015:** Two friends, Colby and Blake, went snowboarding at a resort. Blake was caught in an avalanche at Hells Canyon, and Colby could not locate him. Ski Patrol was contacted, and a rescue mission was organized. A search party comprising ski patrollers, rescue dogs, and explosives was assembled at the top of No Name near the Hells Canyon access point. During the search, a victim was found but had injuries that were too severe to survive. The incident was terminated after the victim was pulled to the base area.[52]

Table 21 lists fatalities from avalanches in or near Weber County since 1958, as of April 22, 2024.

Table 21: Avalanche Fatalities Near Weber County, March 1958–January 2020[53]

Date	Region	Location	Trigger	Fatalities
01/18/2020	Ogden	Farmington Lakes	Snowmobiler	1
03/04/2015	Ogden	Hells Canyon	Snowboarder	1
04/04/2010	Ogden	Francis Peak	Snowmobiler	1
01/24/2010	Ogden	Hells Canyon	Skier	1
02/18/2007	Ogden	Hells Canyon	Skier	1
03/11/2006	Ogden	Whiskey Hill	Snowmobiler	1
12/14/2000	Ogden	Willard Peak	Snowmobiler	1
02/26/1998	Ogden	Ogden	Hiker	1
12/07/1996	Ogden	Bountiful peak	Snowmobiler	1
01/14/1995	Ogden	Ben Lomond	Snowmobiler	2
02/22/1985	Ogden	Powder Mountain	Skier	1

[51] Utah Avalanche Center, "Accident: Farmington Lakes." https://utahavalanchecenter.org/avalanche/50645
[52] Utah Avalanche Center, "Accident: Hells Canyon." https://utahavalanchecenter.org/avalanche/23779
[53] Utah Avalanche Center, "Avalanche Fatalities." https://utahavalanchecenter.org/avalanches/fatalities

Date	Region	Location	Trigger	Fatalities
03/29/1964	Ogden	Taylor Canyon	Skier	1
03/09/1958	Ogden	Snowbasin	Skier	2

Figure 38 through Figure 42 show locations of past avalanches in various categories of location and Figure 43 shows the Powder Mountain Avalanche Zone.

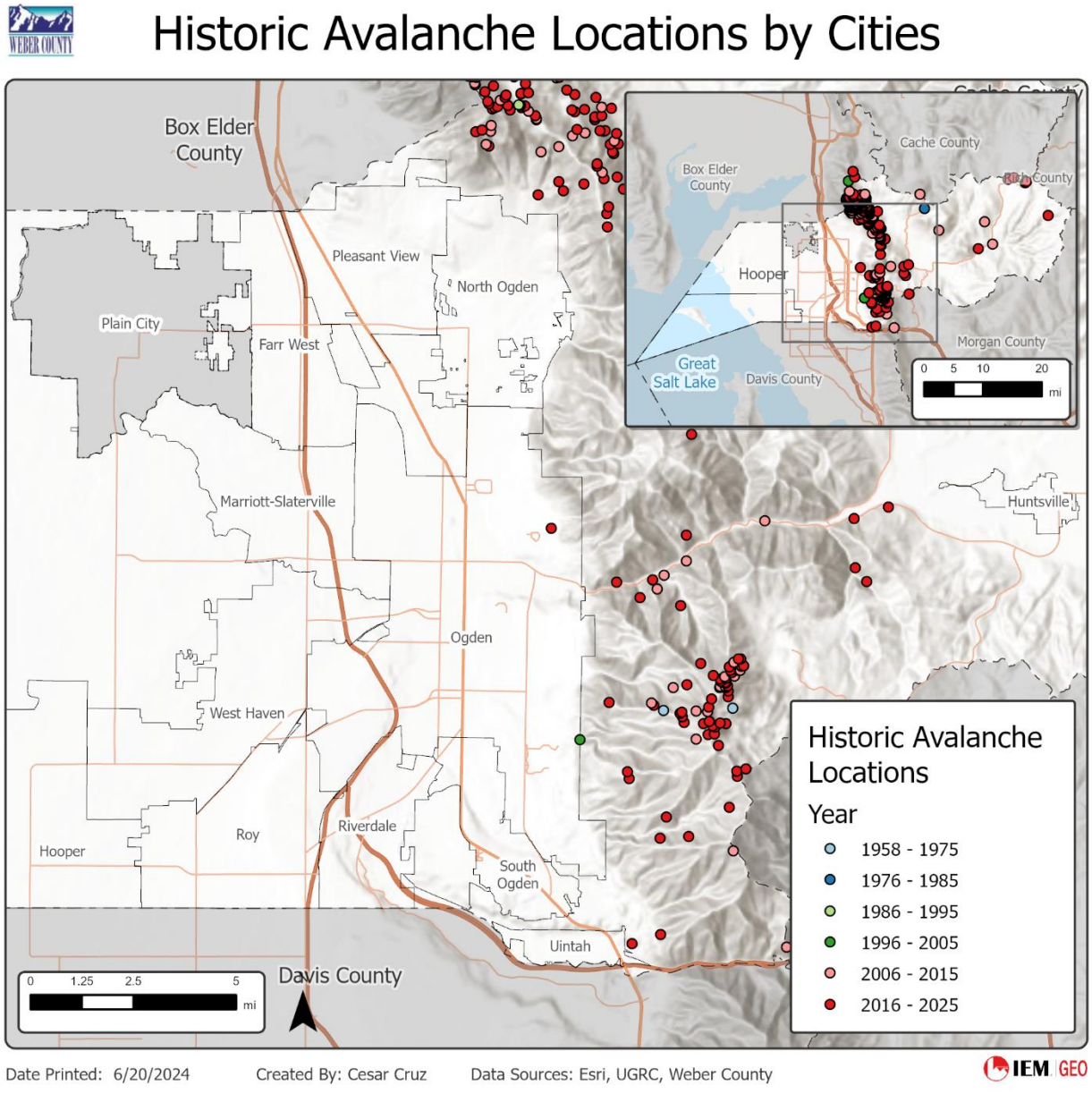


Figure 38: Historic Avalanche Locations by City

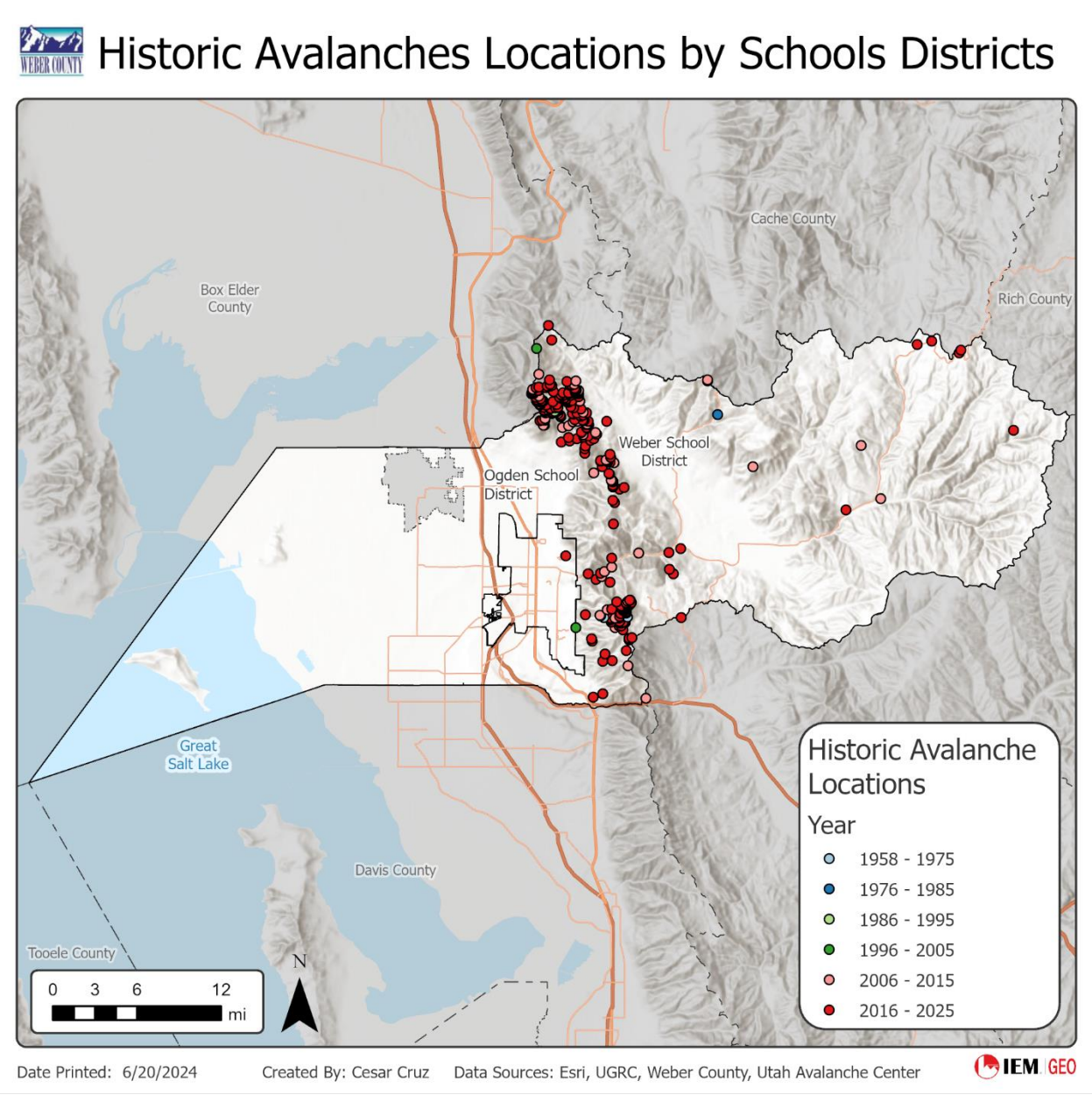


Figure 39: Historic Avalanche Locations by School District

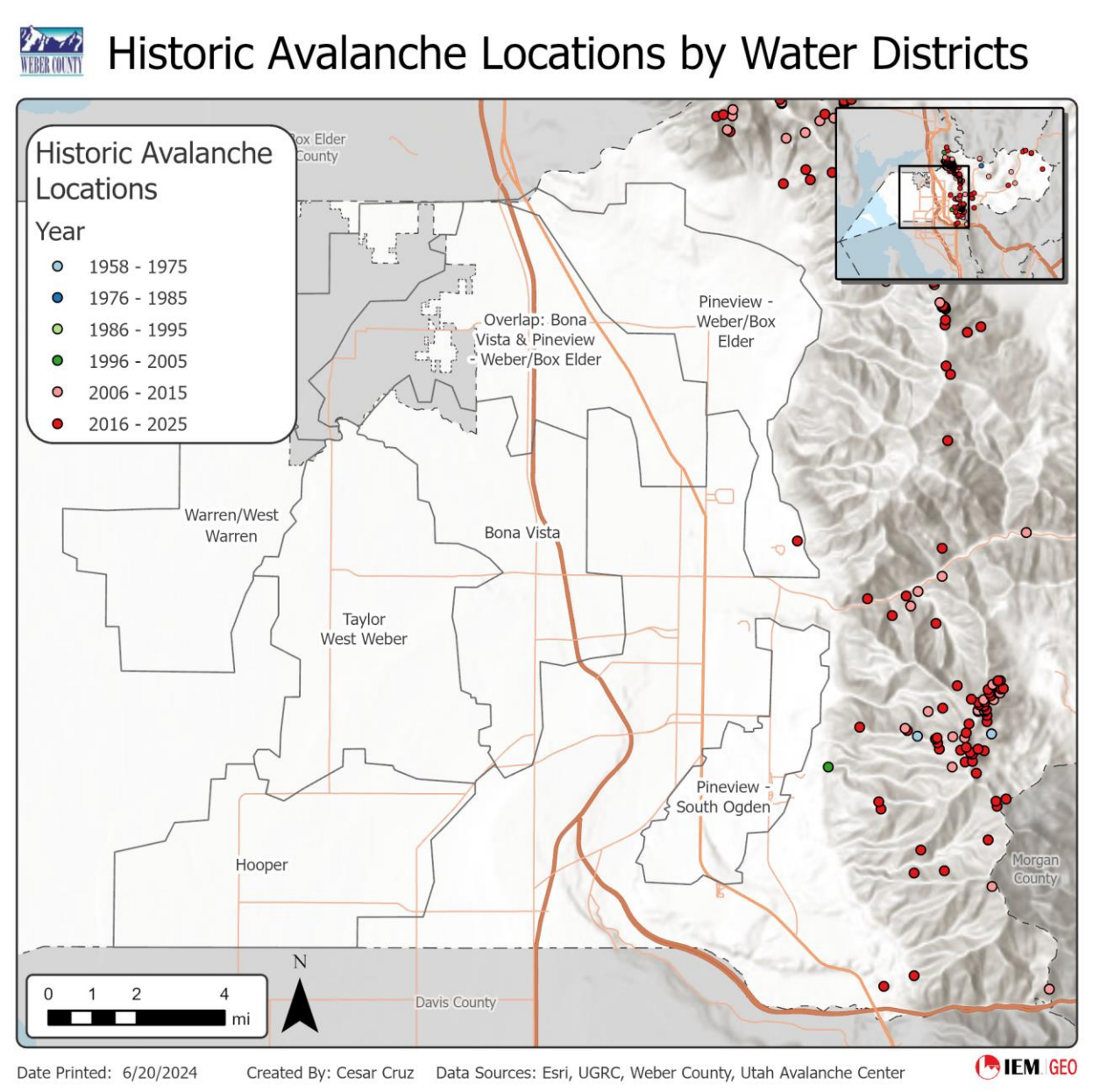


Figure 40: Historic Avalanche Locations by Water District

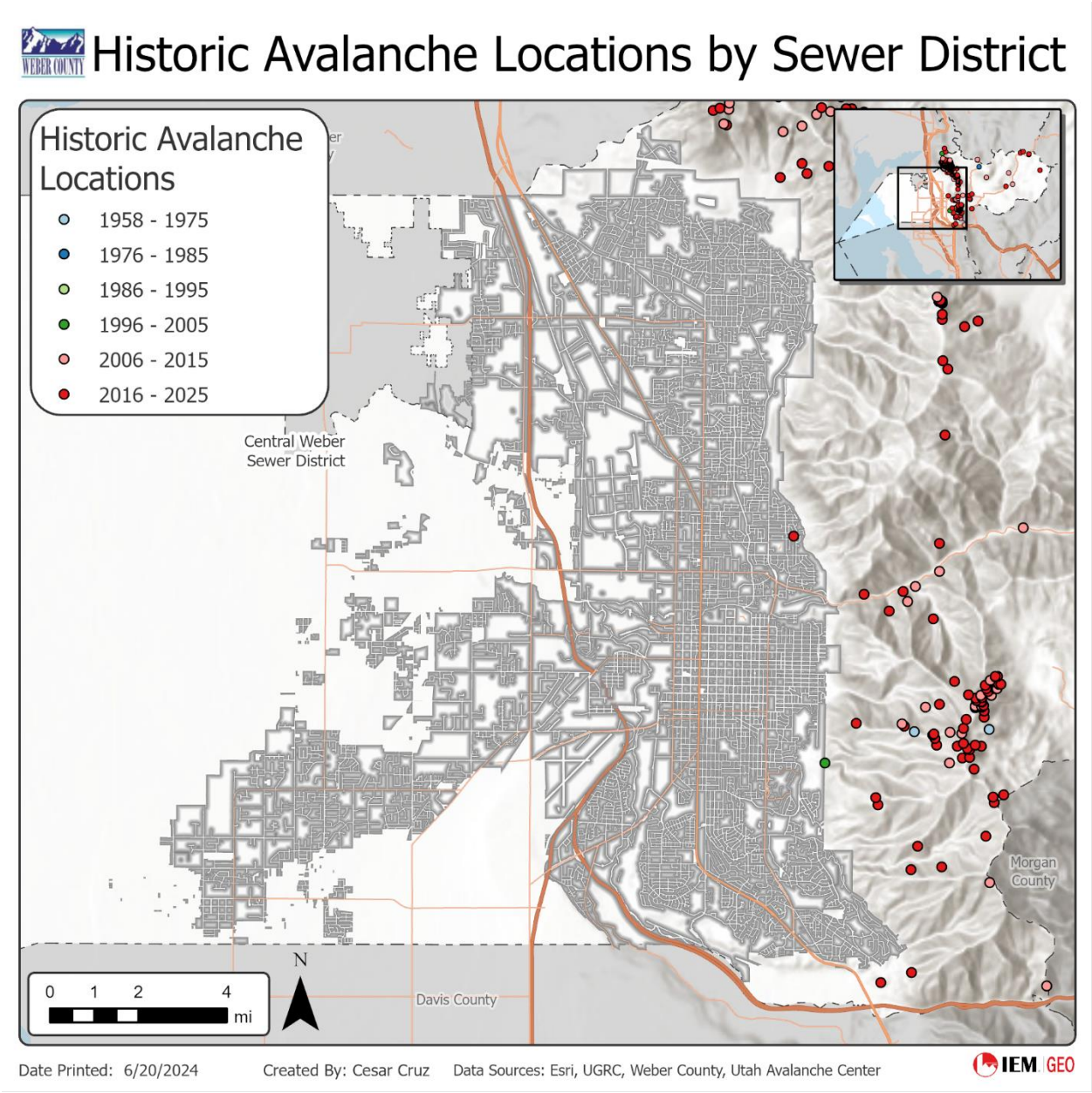


Figure 41: Historic Avalanche Locations by Sewer District

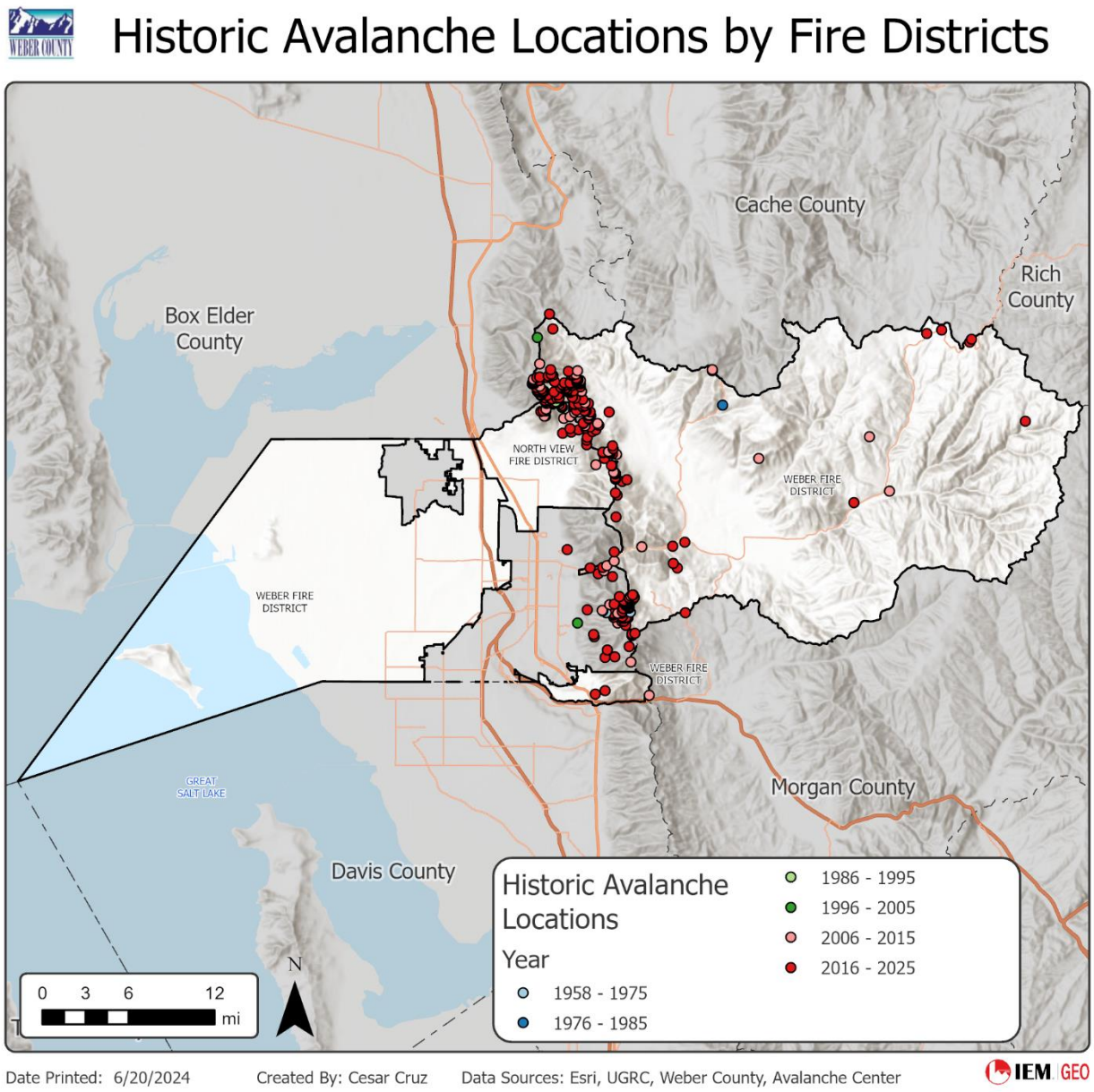


Figure 42: Historic Avalanche Locations by Fire District

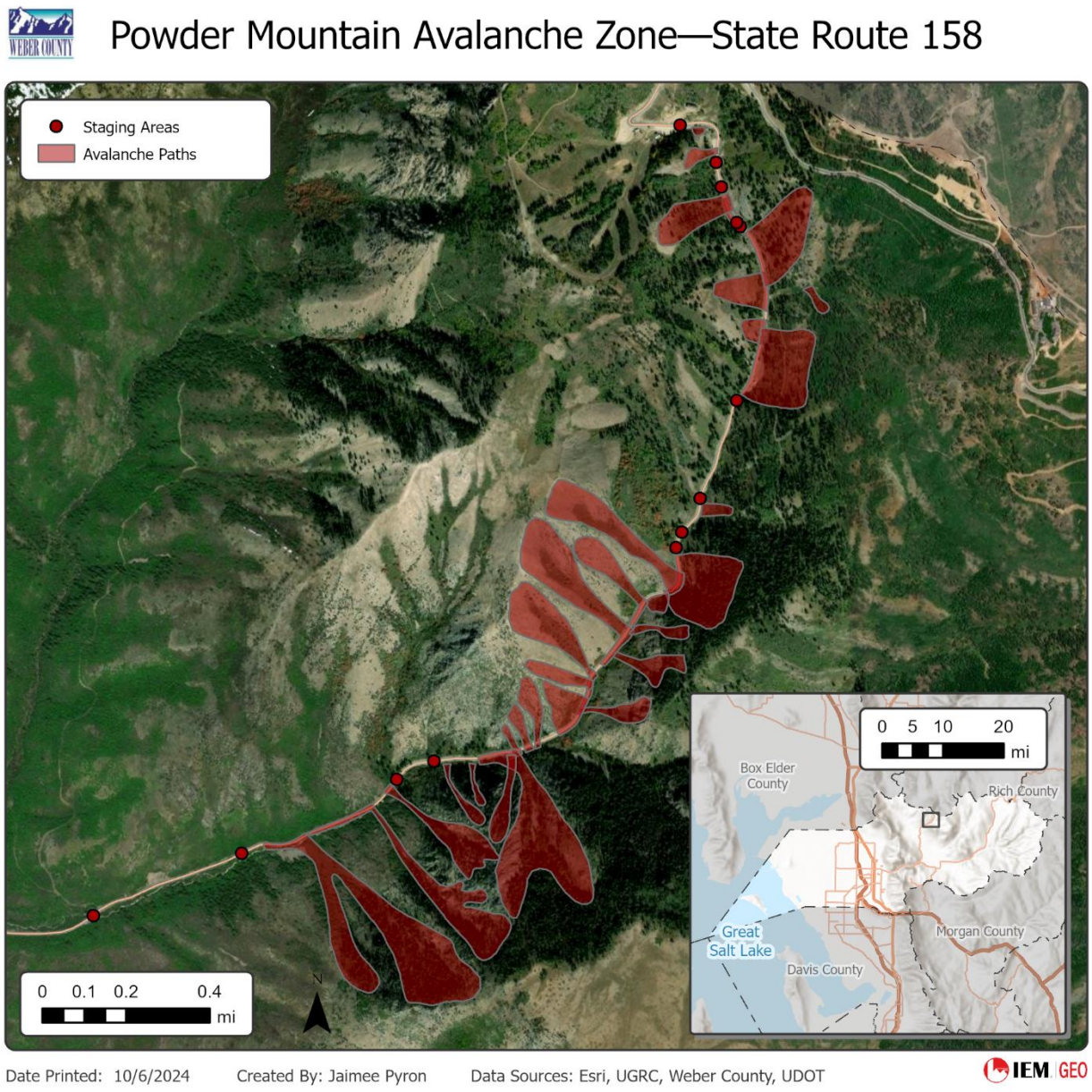


Figure 43: Powder Mountain Avalanche Zone at State Route 158

Probability of Future Occurrences

Figure 44 illustrates the assessment of avalanche occurrences in Weber County. The annualized frequency values serve as a crucial estimate of the likelihood of future avalanche events in Utah counties. These values represent the average number of recorded events per year over a 24-year period captured in the NRI dataset.

While it is important to note that the actual frequency of avalanches in Weber County can vary widely, ranging from zero to potentially hundreds, the values presented in Figure 44 offer a valuable starting

point for evaluating the relative risk across jurisdictions. Despite the potential limitations, the NRI data provide a solid foundation for identifying counties most susceptible to this hazard.

In fact, cities in the county's eastern region, such as North Ogden and Ogden, demonstrate a significantly higher likelihood of snow avalanches than other parts of the county, although critical infrastructure might not be at risk in these areas. This in-depth assessment provides crucial insights for prioritizing and implementing targeted risk mitigation strategies and resource allocation.

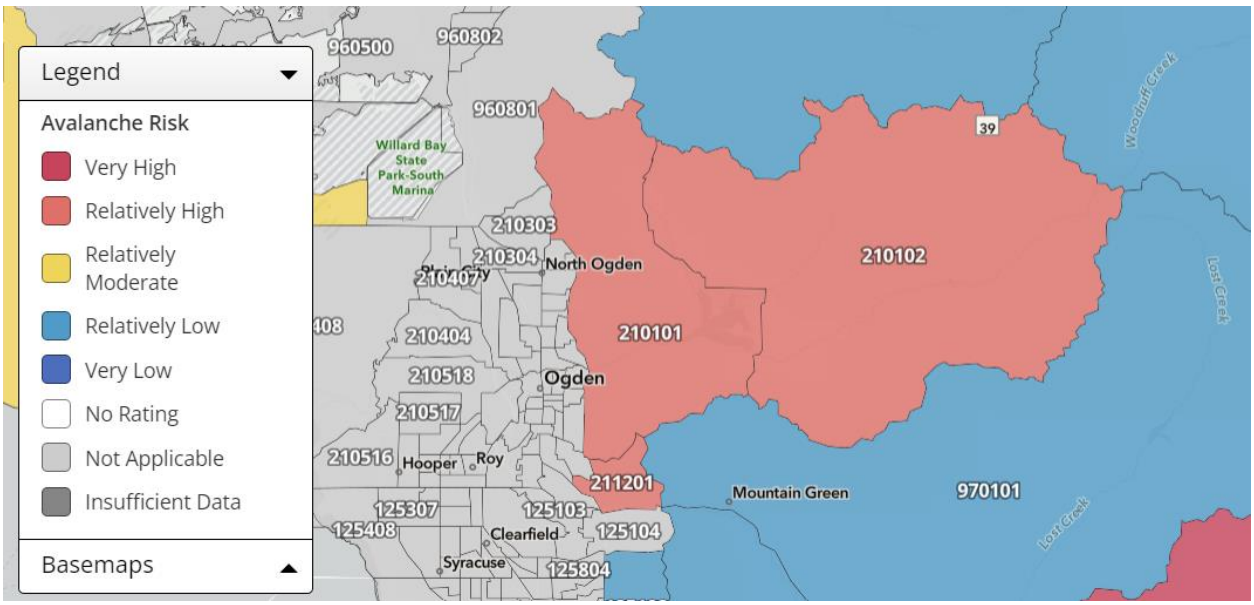


Figure 44: Avalanche Risk in Weber County by Census Tract[54]

Climate change is a pressing issue affecting our planet in various ways, including the likelihood of natural disasters like avalanches. In Weber County, the probability of future avalanches is a growing concern due to the impact of climate change on the region's weather patterns.

Climate change can influence avalanches in various ways. Warmer temperatures can lead to more frequent freeze–thaw cycles, which weaken the snowpack and increase the likelihood of avalanches. Changes in precipitation patterns can also impact avalanche conditions, as heavier snowfall can increase the load on slopes, while rain on snow can destabilize the snowpack. In addition, climate change can affect the distribution of snow accumulation, potentially leading to unusual avalanche patterns in regions that were previously less prone to such events.

As temperatures rise and snowfall patterns become less predictable, the likelihood of avalanches in Weber County increases. In addition, the warming climate causes snow to melt earlier in the season, leading to unstable snowpacks and an increased risk of avalanches.

[54] FEMA, "National Risk Index." https://hazards.fema.gov/nri/map

Given a historic frequency of at least 350 avalanches recorded in the last eight years, and the possibility climate change could increase the frequency of avalanches, the probability of future occurrences of this hazard is **Highly Likely**.

Vulnerability Analysis

Weber County is a beautiful place to live, work, and play, but it is also a place that is particularly vulnerable to avalanches. This is due to the county's rugged terrain, which includes steep mountains, deep canyons, and narrow valleys. When a large snowpack accumulates during the winter, it can become unstable and easily triggered by various factors, such as wind, temperature changes, or human activity. This can lead to dangerous and potentially deadly avalanches that threaten both people and property in the community. People who are most vulnerable to avalanches are those who participate in activities, such as skiing, snowboarding, hiking, or mountain climbing in avalanche-prone areas. Structures, such as homes, hotels, and ski resorts in avalanche paths, also are vulnerable to avalanches. Avalanche-prone areas should be approached with caution and awareness of the risks. The potential impacts of an avalanche can be significant and include property damage, loss of life, and disruption of transportation and communication infrastructure.

Table 22: Avalanche Vulnerability Assessment

Plan Participant Name	Asset Type	Description
Weber County	Structures	Homes and recreational facilities in the more mountainous portions of Weber County are at-risk from avalanche.
	Systems	Transportation routes including North Ogden Divide road, the mountainous route which connects North Ogden to Liberty, are at risk from avalanches. State Route 158 between Eden and Powder Mountain could also be impacted.
	Populations	People in the more mountainous portions of Weber County are at-risk from avalanche. The highest risk is to those who participate in outdoors activities, particularly back country activities like hiking, skiing, or mountain climbing.
	Other	Tourism and recreation activities could be affected.
	Other	Residents in Ogden Canyon below 75" pipeline.

Plan Participant Name	Asset Type	Description
Pleasant View	Structures	Homes and businesses in the hillside and sensitive land areas of the northeastern portion of Pleasant View could be at risk. No critical facilities were identified as at-risk to this hazard.
	Systems	Transportation routes including to the more mountainous portions of Pleasant View are vulnerable to this hazard.
	Populations	People, including first responders, especially those in the more mountainous portions of Pleasant View, are vulnerable.
	Other	Same as County
Pineview Water Systems	Structures	No Pineview Water Systems structures or critical infrastructure in the district's service area were identified as at-risk to this hazard, but water shortages could have impacts on facilities that require water to operate.
	Systems	Water systems are at risk.
Weber School District	Structures	School district structures are not at direct risk from this hazard. All school facilities are located within urban areas without a slope sufficient to be directly affected by an avalanche.
	Systems	Transportation routes to and from the school district facilities are vulnerable to disruption due to avalanche.
	Populations	Students and staff of the Weber School District may be at-risk en route to school due to avalanche along the transportation routes.
	Other	School services, including student attendance and after school programs, may be vulnerable to the effects of avalanche if transportation routes are impacted.

Plan Partic-ipant Name	Asset Type	Description
Weber Fire District	Struc-tures	The Weber Fire District covers the three ski resorts in the county and has mountainside communities that are vulnerable. District owned stations are not located in at-risk areas as there is insufficient slopes for an avalanche.
	Sys-tems	Same as County
	Popu-lations	Same as County. In addition, Weber Fire District staff may be at risk of injury during response to an avalanche.
	Other	None

Impacts

Avalanches can significantly impact a community, but the risk to Weber County is relatively moderate, as shown in the NRI data.

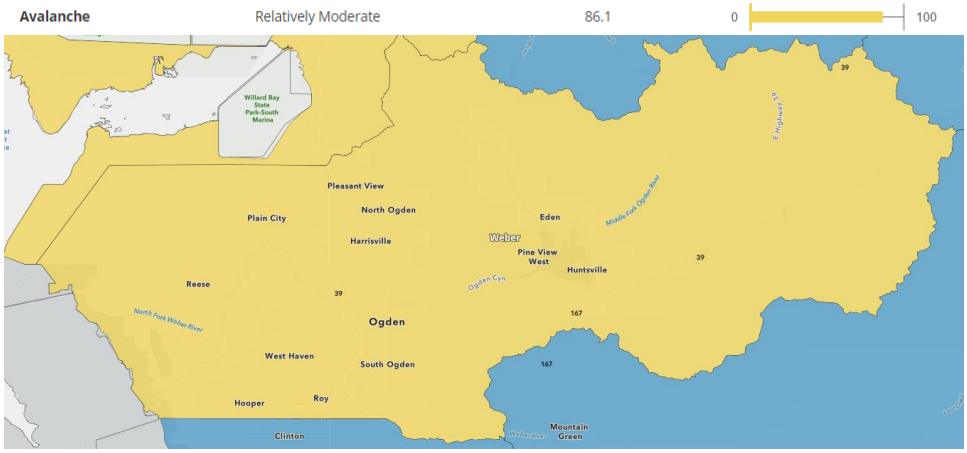


Figure 45: Avalanche Risk Rating for Weber County, Utah[55]

Table 23 presents detailed data on the risk exposure values and the associated costs of the project in the event of avalanches. This information is essential for assessing the financial impact and risk mitigation strategies related to the project.

[55] FEMA, "National Risk Index." https://hazards.fema.gov/nri/map#

Table 23: Avalanche Risk Exposure Value, Weber County[56]

Building Value	Population Equivalence	Population	Total
$1,000,000	$58,000,000	5.00	$59,000,000

Table 24 and Table 25 present detailed information on the estimated annual financial losses to buildings and population in Weber County caused by avalanches. Figure 46 provides the same data in census tract form. These data provide an overview of the projected economic impact of avalanches on the area, considering both structural damage to buildings and potential effects on the population.

Table 24: Expected Annual Loss from Avalanche, Weber County[57]

Building Value	Population Equivalence	Population	Total
$1,029	$808,077	0.07	$809,105

Table 25: Expected Annual Loss from Avalanche to Jurisdictions in Weber County[58]

Jurisdiction	Expected Annual Loss	Exposure Loss	Vulnerability Score
Farr West	N/A		
Harrisville	N/A		
Hooper	N/A		
Marriot-Slaterville	N/A		
North Ogden	N/A		
Ogden	N/A		
Plain City	N/A		
Pleasant View	N/A		
Riverdale	N/A		
Roy	N/A		
South Ogden	N/A		
Uintah	N/A		

[56] FEMA, "National Risk Index Weber County Utah." https://hazards.fema.gov/nri/report/viewer?dataLOD=Counties&dataIDs=C49057#SectionExpectedAnnualLoss
[57] Ibid.
[58] Ibid.

Jurisdiction	Expected Annual Loss	Exposure Loss	Vulnerability Score
Washington Terrace	N/A		
West Haven	N/A		

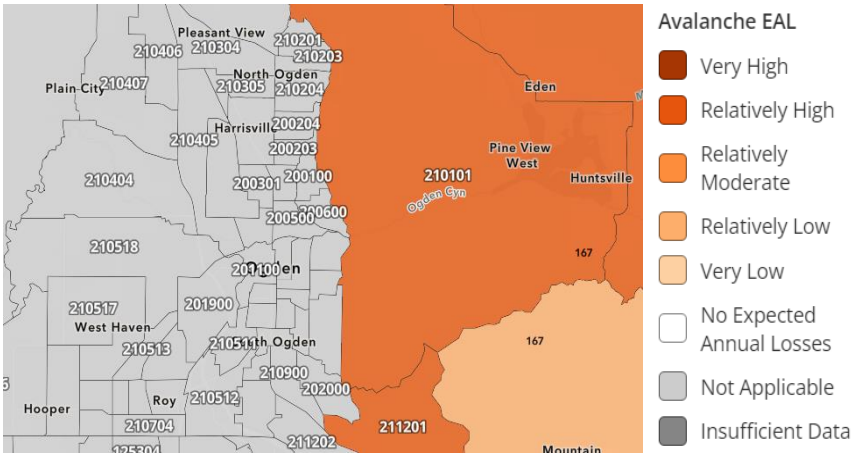


Figure 46: Map and Legend of Expected Annual Loss from Avalanche, Weber County[59]

As demonstrated in the NRI map, the Huntsville data comes from a zip code that includes a large portion of the Ogden Area Mountains Avalanche Zone. Huntsville itself is predominantly flat. Therefore, it can be extrapolated that this data primarily applies towards the unincorporated Weber County around Huntsville.

Climate change could increase the frequency of these types of events for all plan participants. More frequent events could lead to increased impacts. Ongoing growth and development associated with increased population in at-risk areas will put more people and property at risk.

Table 26: Impacts of Avalanches by Jurisdiction

Plan Participant Name	Impacts
Weber County	Structures could be damaged or destroyed by avalanches. Transportation routes could be closed, damaged, or destroyed due to an avalanche. Economic impacts could be felt due to route closures. People, particularly outdoors enthusiasts, could be hurt or killed by an avalanche.
Pleasant View	Homes, businesses, and transportation routes in the hillside and sensitive land areas in the northeastern portion of Pleasant View could be closed, damaged, or destroyed due to an avalanche. People, including first responders, could be hurt or killed by an avalanche.

[59] Ibid.

Plan Participant Name	Impacts
Pineview Water Systems	Water systems could be damaged or destroyed by an avalanche. Delays in service could impact other types of facilities and the population of Ogden Canyon.
Weber School District	Transportation routes to Weber School District facilities could be closed, damaged, or destroyed due to an avalanche. People, particularly students or staff, could be hurt or killed by an avalanche. School services may be delayed or cancelled depending on the scope of the hazard event.
Weber Fire District	The Weber Fire District may be called upon to respond to damaged or destroyed ski resorts and mountainside communities within its service district. Weber Fire District staff may be injured during response initiatives.

Changes in Development

The impacts of climate change can lead to an increase in avalanches, which could significantly impact the development of Weber County. With a growing population and a potential increase in natural disasters such as avalanches, it will become increasingly important for the county to prioritize safety and implement measures to mitigate risks. With the potential threat of avalanches in certain areas, particularly in the Ogden and Uintah regions, developers and city planners may need to take more precautions when deciding where to build new infrastructure and homes. This could lead to zoning regulations that limit development in high-risk areas or the construction of protective barriers to minimize the impact of avalanches. In addition, increased awareness of the risk of avalanches could lead to a shift in public opinion, with residents placing a higher value on safety and demanding that their local governments take appropriate measures to mitigate the risk of avalanches.

The extent to which climate change will affect the vulnerability of county assets to avalanches is uncertain, making it challenging to assess. It is expected that snow cover will decrease in area, duration, and depth on average because of the transformation of snow into rain and its spread to higher elevations. However, there may still be instances of heavy snowfall and avalanches in areas that were previously considered safer. Detailed information about which assets may face different vulnerabilities in the future is currently unavailable, but this could be a topic of interest for researchers in the future.

Table 27 indicates how overall vulnerability to the avalanche hazard has increased, decreased, or stayed the same for each plan participant since the last plan update.

Table 27: Avalanche Changes in Development Summary

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Weber County	Increased	Continued growth and building associated with increasing population have moved rural and suburban communities into areas prone to avalanches.
Pleasant View	Stayed the Same	Development that has occurred is not anticipated to have impacted this hazard type.
Pineview Water Systems	Increased	Changes in development include more homes higher along the bench, increasing the risk of impacts from avalanches.
Weber School District	Stayed the Same	The risk from avalanches has stayed the same since the previous plan update and has not been impacted by changes in development.
Weber Fire District	Stayed the Same	The risk from avalanches has stayed the same since the previous plan update and has not been impacted by changes in development.
Weber County	Increased	Continued growth and building associated with increasing population have moved rural and suburban communities into areas prone to avalanches.
Pleasant View	Stayed the Same	Development that has occurred is not anticipated to have impacted this hazard type.
Pineview Water Systems	Increased	Changes in development include more homes higher along the bench, increasing the risk of impacts from avalanches.
Weber School District	Stayed the Same	The risk from avalanches has stayed the same since the previous plan update and has not been impacted by changes in development.
Weber Fire District	Stayed the Same	The risk from avalanches has stayed the same since the previous plan update and has not been impacted by changes in development.

SECONDARY HAZARDS

The secondary or cascading impacts of an avalanche can be quite devastating. Some of the common impacts include:

1. **Damage to infrastructure:** Avalanches can cause significant damage to roads, bridges, buildings, and other infrastructure in their path. This can lead to disruptions in transportation and communication, making it difficult for emergency services to reach affected areas.
2. **Loss of life:** Avalanches can be deadly, and the impact can be more severe in areas with a high population density. People caught in an avalanche may suffer from injuries, hypothermia, or suffocation, which can lead to loss of life.
3. **Economic loss:** The aftermath of an avalanche can lead to significant economic loss, especially in areas that rely on tourism and outdoor recreation for their livelihoods. The cost of repairing damaged infrastructure and the loss of business can have a long-term impact on the local economy.
4. **Environmental damage**: Avalanches can cause significant environmental damage, including deforestation, soil erosion, and loss of wildlife habitat. This can have a long-term impact on the ecosystem, affecting biodiversity and the overall health of the environment.

It is important to take the necessary precautions and measures to prevent avalanches and minimize their impact on the environment and human life.

Dam Failure

Dams are built for hydroelectric power generation, flood control, recreation, water storage for irrigation, and municipal and industrial uses. Dams and associated water delivery systems serve various functions and are built by different agencies and entities, including the Bureau of Reclamation, Army Corps of Engineers, Soil Conservation Service, cities, counties, and private irrigation companies.

The risk of dam failure can be considered in terms of incremental, non-breach, and residual risk. According to the Rehabilitation of High Hazard Potential Dams Grant Program Guide, June 2020, these types of risk are defined as:

- **Incremental Risk:** The risk (likelihood and consequences) to the pool area and downstream floodplain occupants that can be attributed to the presence of the dam should the dam breach prior or subsequent to overtopping, or undergo component malfunction or misoperation, where the consequences considered are over and above those that would occur without dam breach. The consequences typically are due to downstream inundation, but loss of the pool can result in significant consequences in the pool area upstream of the dam.
- **Non-Breach Risk**: The risk in the reservoir pool area and affected downstream floodplain due to "normal" dam operation of the dam (e.g., large spillway flows within the design capacity that exceed channel capacity) or "overtopping of the dam without breaching" scenarios.
- **Residual Risk**: The risk that remains after all mitigation actions and risk reduction actions have been completed. With respect to dams, FEMA defines residual risk as "risk remaining at any time" (FEMA, 2015, p A-2). It is the risk that remains after decisions related to a specific dam safety issue are made and prudent actions have been taken to address the risk. It is the remote risk associated with a condition that was judged to not be a credible dam safety issue.

Partial or complete dam failure can cause a high risk of flooding downstream from the dam. All dam structures require emergency spillways to release excess water in the event of a 100-year flood incident. If the dam is overtopped, as is common with earthen dams, the water passing over the top of the dam could cause eminent dam failure.[60]

Due to the security concerns surrounding this hazard, after consultation with the Bureau of Reclamation, certain information on the population at risk and inundation zones has been excluded from this plan. Controlled Unclassified Information (CUI) is information that is designated as sensitive to protect, control, and restrict access, as permissible under laws and regulations. The release of such information may cause harm to a person's privacy or welfare, adversely impact economic or industrial institutions, or compromise programs or operations essential to our national and agency interests. Inundation maps are considered information that could be used to compromise the integrity of the facility and are therefore CUI documents that are not released to the public.

[60] Utah State Hazard Mitigation Plan, 2024, "Dam Incident Description," State of Utah Hazard Mitigation Plan | State of Utah Hazard Mitigation

The information provided in Reclamation Emergency Action Plans and Inundation Maps are considered to be CUI and may be exempted from further public release under the Freedom of Information Act (5 U.S.C. 552). Access to CUI will be limited and on a need-to-know basis. All individuals handling this information are required to protect it from unauthorized disclosure.

This data deficiency could be addressed in future iterations by developing additional inundation maps as needed and creating a redacted version of this section. Descriptions of dams BOR identified as a potential concern are still included. Participants also reported that they felt they were aware of how these materials related to them and their dam failure risk. Where applicable, dam failure actions are included, particular to Weber County.

Location

Utah's dry climate demands the storage of the winter snowmelt runoff for uses all year round; thus, dam placement is critical for water collection and for the area-wide distribution systems to be effective. Dam sites with strong impermeable bedrock are the best in terms of strength. The 650 non- federal dams in Utah store more than 1.2 million acre-feet of water. Table 28 lists all dams and reservoirs in Weber County found on the National Inventory of Dams, the name of the owner and the current hazard potential classification rating.[61] Dam classification is explained in the section on Dam Failure.

Table 28: Dams/Reservoirs Located in Weber County

Dam/Reservoir Name	Owner	Rating
Alliance Consulting Engineers, Inc.	Alliance Consulting Engineers, Inc.	Significant
Ben Lomond Reservoir	Ben Lomond Company	Significant
Causey	Federal/Reclamation	High
Four Mile Debris Basin-Harrisville	City of Harrisville	Significant
Grand Legacy Irrigation Reservoir	Ben Lomond Company	Significant
Hooper Irrigation Company	Hooper Irrigation Company	Significant
Kelly Cannon	Green Hill Homeowners Association	Significant
Lithium Corporation of America	Lithium Corporation of America	Low
North Ogden City – Cold Water Canyon	North Ogden City	Significant

[61] National Inventory of Dams, 2024, https://nid.sec.usace.army.mil/#/dams/system/UT53702S002/inspections

Dam/Reservoir Name	Owner	Rating
North Ogden City – Orton Park/2100 North	North Ogden City	High
North Ogden City – Oak Lawn Park	North Ogden City	Significant
Ogden City – Beus Pond	Ogden City Engineering Department	Significant
Ogden City – Sullivan Hollow	Ogden City Engineering Department	High
Pineview	Federal/Reclamation	High
SMHG Management LLC	SMHG Management LLC	Significant
SnowBasin Resort Company	Snow Basin Resort Company	Low
Sourdough Wilderness Ranch	Sourdough Wilderness Ranch	Significant
South Ogden City Birch Creek (Debris)	South Ogden City	High
South Ogden City Birch Creek (Glas-mann)	South Ogden City	High
South Ogden Equalizer Reservoir #13	Federal/Reclamation	High
South Ogden Equalizer Reservoir #17	Federal/Reclamation	High
South Ogden Equalizer Reservoir #25	Federal/Reclamation	High
South Ogden Equalizer Reservoir #25A	Federal/Reclamation	High
South Ogden Equalizer Reservoir #25B	Federal/Reclamation	High
South Ogden Equalizer Reservoir P	Federal/Reclamation	High
Ten Acre Lake	Wolf Creek Water & Sewer Improve-ment District	High
Utaba Retarding	Weber County	High
Weber Basin Equalizing Reservoir – Combe	Federal/Reclamation	High

Dam/Reservoir Name	Owner	Rating
Weber Basin–Uintah Bench Lower Equalizing Reservoir	Federal/Reclamation	High
Weber/Box Elder – A Reservoir	Pineview Water Systems/Weber-Box Elder Conservation District	High
Weber/Box Elder – B Reservoir	Weber/Box Elder Conservation District	Significant
Weber/Box Elder – D Reservoir 900 West	Weber/Box Elder Conservation District	Significant
Weber/Box Elder – F Reservoir	Weber/Box Elder Conservation District	Significant
Weber/Box Elder – H Reservoir (Lower)	Weber/Box Elder Conservation District	Significant
Weber/Box Elder – L Reservoir	Weber/Box Elder Conservation District	Significant
Weber/Box Elder – Reservoir 3-Unit C	Weber/Box Elder Conservation District	Significant
Weber/Box Elder– J Reservoir	Weber/Box Elder Conservation District	Significant
Weber/Box Elder Westview Reservoir	Weber/Box Elder Conservation District	Significant
Western Zirconium, Inc	Western Zirconium, Inc.	Low
Wolf Creek Irrigation Company	Wolf Creek Irrigation Company	Significant
Wolf Creek Irrigation Company 99-35-72md	Wolf Creek Irrigation Company	Significant

Magnitude/Extent

Of the 87 dams in Weber County, 16 are listed as high hazard potential dams 52 (HHPDs). This means that, if they fail, there is a high probability of causing loss of life and extensive economic loss.[62] Of the 16 HHPDs in Weber County, 25% are owned by the County, 63% are federally owned, and 13% are privately owned. Two dams owned by Weber County have a low hazard threat; if they fail, there is a low probability they would cause loss of life. Both threats would cause appreciable property damage.



Figure 47: Flooding Along Wolf Creek Near the Unincorporated Community of Eden

Other dams outside the County that could also affect Weber County include Echo Dam, located between Morgan and Park City; Wanship Dam/Rockport Reservoir, located upstream from Echo Dam; East Canyon Dam, south of Morgan City; Lost Creek Dam northeast of Morgan City; and AV Watkins Dam – Willard Reservoir/Willard Bay, in Box Elder County on the northern border of Weber County. Willard Bay is a diked bay of the Great Salt Lake with a capacity greater than 215,000 acre-feet of water. A catastrophic breach of the reservoir could flood much of the northwestern portion of Weber County.

Dam safety hazards are classified by the State of Utah Engineers Office to administer all non-federal dams in response to the Federal Dam Safety Act. The classifications are based on the damage caused if the dam were to fail, not the dam's probability of failure. Therefore, the classification of an HHPD does not mean that it has a high probability of failure. The rating system considers variables, such as the concentration of life and property located downstream, the size, height, volume, and the incremental risk/damage assessments of dams.[63] Figure 48 shows a method of categorizing dams by risk that will provide an initial sorting of dam safety actions.

Dam failure could affect all jurisdictions in the planning area excluding North Ogden, Roy, South Ogden, Washington Terrace, Ogden School District, Central Weber Sewer Improvement District, West Warren/Warren Water Improvement District, and North View Fire District.

[62] Utah State Hazard Mitigation Plan, 2024, "Dam Incident Description," State of Utah Hazard Mitigation Plan | State of Utah Hazard Mitigation

[63] Utah State Hazard Mitigation Plan, 2024, "Dam Incident Extent and Magnitude," State of Utah Hazard Mitigation Plan | State of Utah Hazard Mitigation

Urgency of action	Characteristics and considerations	Potential actions
I – VERY HIGH URGENCY	CRITICALLY NEAR FAILURE: There is direct evidence that failure is in progress, and the dam is almost certain to fail during normal operations if action is not taken quickly. OR EXTREMELY HIGH RISK: Combination of life or economic consequences and likelihood of failure is very high with high confidence.	• Take immediate action to avoid failure. Communicate findings to potentially affected parties. • Implement IRRMs. • Ensure that the emergency action plan is current and functionally tested. • Conduct heightened monitoring and evaluation. Expedite investigations and actions to support long-term risk reduction. • Initiate intensive management and situation reports.
II - HIGH URGENCY	RISK IS HIGH WITH HIGH CONFIDENCE, OR IT IS VERY HIGH WITH LOW TO MODERATE CONFIDENCE: The likelihood of failure from one of these occurrences, prior to taking some action, is too high to delay action.	• Implement IRRMs. • Ensure that the emergency action plan is current and functionally tested. • Give high priority to heightened monitoring and evaluation. Expedite investigations and actions to support long-term risk reduction. • Expedite confirmation of classification.
III - MODERATE URGENCY	MODERATE TO HIGH RISK: Confidence in the risk estimates is generally at least moderate, but can include facilities with low confidence if there is a reasonable chance that risk estimates will be confirmed or potentially increase with further study.	• Implement IRRMs. • Ensure that the emergency action plan is current and functionally tested. • Conduct heightened monitoring and evaluation. Prioritize investigations and actions to support long-term risk reduction. • Prioritize confirmation of classification as appropriate.
IV – LOW TO MODERATE URGENCY	LOW TO MODERATE RISK: The risks are low to moderate with at least moderate confidence, or the risks are low with low confidence, and there is a potential for the risks to increase with further study.	• Ensure that routine risk management measures are in place. • Determine whether action can wait until after the next periodic review. • Before the next periodic review, take appropriate interim measures and schedule other actions as appropriate. • Give normal priority to investigations to validate classification, but do not plan for risk reduction measures at this time.
V – NO URGENCY	LOW RISK: The risks are low and are unlikely to change with additional investigations or studies.	• Continue routine dam safety risk management activities and normal operations and maintenance.

Figure 48: Joint Federal Risk Categories[64]

Previous Occurrences

Based on the FEMA Disaster Declarations Database, Weber County has received no designation for dam failure disaster declarations since the last plan update.

[64] Federal Guidelines for Dam Safety Risk Management. https://www.fema.gov/sites/default/files/2020-08/fema_dam-safety_risk-management_P-1025.pdf

Dam and water conveyance structure failures have caused significant damage to structures and property and have resulted in five fatalities in Utah since 1847. The failure of the Quail Creek dam on December 31, 1988, resulted in approximately $12 million in damage and cost $8 million to rebuild. Most Utah dam and canal failures have resulted from piping, erosion, and other soil or rock problems.[65] There have been no recorded dam failures in Weber County.

Probability of Future Occurrences

No agency or entity in the State of Utah has been assigned to determine the probability of dam failure, as there are no specific quantifiers to identify the probability of dam failure. Based on the historical frequencies of dam failure in Utah and Weber County, the probability of dam failure is considered **Unlikely**, with minimal to no chance of occurring in a given year.

There are indicators that can provide insight into the likelihood of dam failure. One indicator is the frequency of past incidents. Utah has had only one notable incident per decade in the past 75 years, none of which occurred in Weber County. Another indicator would be the age of the dam, as all dams have a designed lifespan, considering the deterioration of the dam structure over time. In 2040, 69 HHPDs in Utah will be over 100 years old. Dam inspection results also serve as an indicator of the probability of dam failure, using the safety rating scale of Satisfactory, Fair, Poor, and Unsatisfactory to provide a rating classification, although many dams in Utah do not have a safety rating. Weber County has no HHPD non-federal dams with the safety rating of poor, although many of these dams have no regular inspection, maintenance, or current safety condition rating.[66]

The impact of climate change on dam safety has raised concerns for emergency managers, as the potential for unexpected runoff events due to extreme weather events, such as atmospheric river incidents, become more frequent and more extreme. Researcher studies have revealed that climate change has already doubled the probability of an event sufficient to cause catastrophic flooding. In addition, the dynamics of a changing snow/rain regime could increase sudden runoff by another 200-400% in the future.[67]

Vulnerability Analysis

The vulnerabilities of plan participants are as follows:

[65] Utah Geological Survey, a Division of Utah Department of Natural Resources, Steven D. Bowman and William R. Lund, 2016, "Guidelines for Investigating Geological Hazards and Preparing Engineering-Geology Reports, with a Suggested Approach to Geologic-Hazard Ordinances in Utah", c-122.pdf (utah.gov)
[66] Utah State Hazard Mitigation Plan, 2024, "Dam Incident Extent and Magnitude", State of Utah Hazard Mitigation Plan | State of Utah Hazard Mitigation
[67] Utah State Hazard Mitigation Plan, 2024, "Dam Incident Climate Change Considerations", State of Utah Hazard Mitigation Plan | State of Utah Hazard Mitigation

Table 29: Dam Failure Vulnerability Assessment

Plan Participant Name	Asset Type	Description
Weber County	Structures	Multiple areas downstream of high-hazard BOR dams, one-high hazard state dam, and one county-owned high hazard dam as well as dams in the western portion of the county are vulnerable to dam failure.
	Systems	Dam failure would impact significant portions of roadways. Dam failure could disrupt bus and rail routes.
	Populations	There is potential loss of life in Ogden Canyon as well as the Eden/Liberty areas of the upper valley. Populations downstream of HHPDs would be at the greatest risk.
	Other	None
Farr West	Structures	The potential for personal or commercial properties could be affected if Willard Bay breaches. There is minimal potential if the Pineview Reservoir were to breach. The vulnerable assets in question would be farmland, several homes, and a few businesses along the canals and tributaries to which the water could migrate and overfill.
	Systems	The roads in the potential areas could experience flooding or be washed out.
	Populations	None
	Other	The economy would not be at any significant risk.
Harrisville	Structures	The dam at Independence Park—If this dam were to fail, it could cause small-scale flooding in the surrounding area, affecting residential properties.
	Systems	None
	Populations	Residents of area around Independence Park could be affected by dam failure.
	Other	None

Plan Participant Name	Asset Type	Description
Hooper	Structures	According to dam failure simulations, a dam failure would have a minimal impact on city structures. The city has large diesel pumps and generators to elevate and divert water.
	Systems	Flooding could make roads impassable, knock out power or communication systems.
	Populations	Increased risk for those who require power for medical purposes. Restricted communication could also be an issue, particularly for those that are monitored remotely
	Other	It could substantially affect farmland and farm animals and have a significant economic impact.
Huntsville	Structures	Dam failure is limited to a small area, including a few residences.
	Systems	The town could be isolated, preventing access to medical facilities, emergency response, and many other issues.
	Populations	Limited to a few residents.
	Other	None
Marriott-Slaterville	Structures	The city could see citywide inundation.
	Systems	Same as County
	Populations	Individuals downstream of dam following a failure could be harmed.
	Other	None
Ogden	Structures	Structures downstream of a dam failure could have significant damage.
	Systems	Could cause major damage to infrastructure throughout the city, including the power grid. Could disrupt the culinary water supply.

Plan Participant Name	Asset Type	Description
	Populations	Dam failure will affect the majority of the vulnerable population in Ogden.
	Other	None
Plain City	Structures	Dam failure is somewhat of a concern if the Weber River gets overwhelmed; this could cause flooding issues for homes/residents next to the river.
	Systems	Same as County
	Populations	People downstream of dam failure could be harmed.
	Other	None
Pleasant View	Structures	Residents in multiple neighborhoods and the Weber High School could be impacted.
	Systems	Could cause major damage to infrastructure throughout the city, including the power grid and communications interoperability.
	Populations	Dam failure will affect the majority of the vulnerable population in Ogden.
	Other	None
Riverdale	Structures	Residences and businesses in Riverbed area could be affected.
	Systems	Roadways and infrastructure could be impacted.
	Populations	Residents in Riverbed.
	Other	None.
Roy	Structures	Weber Basin Water Conservancy District provides wholesale culinary water to the city. Weber Basin's diversion facilities from the Weber

Plan Participant Name	Asset Type	Description
		River are vulnerable to a dam failure. Similarly, irrigation water diversions from the Weber River are vulnerable to dam failure. A dam failure would also damage the regional interstate transportation networks (I-15 and I-84 bridges).
	Systems	Culinary and secondary water supplies could be reduced, and water levels in City wells could be lowered. Demands on culinary water supplies would increase if secondary water uses are severely restricted. Regional interstate transportation networks (I-15 and I-84, bridges) could be affected.
	Populations	Same as County
	Other	Weber Basin Water Conservancy District provides wholesale culinary water to the city. Weber Basin's diversion facilities from the Weber River are vulnerable to dam failure. Similarly, irrigation water diversions from the Weber River are susceptible to dam failure.
Uintah	Structures	Residences and businesses in area could be affected.
	Systems	Roadways and infrastructure could be impacted.
	Populations	Residents downstream of dam may be at risk.
	Other	None
West Haven	Structures	The entire city could be impacted, including infrastructure, agriculture, residential, and commercial buildings.
	Systems	Same as County
	Populations	Residents downstream of dams may be at risk
	Other	Other

Plan Participant Name	Asset Type	Description
Ogden School District	Structures	School facilities in dam inundation areas are at risk including Mound Fort Junior High and Gramercy Elementary Buildings.
	Systems	Same as County
	Populations	Employees and students of the district may be at risk.
	Other	None
Pineview Water Systems	Structures	Dam failure could cause flooding of homes and businesses.
	Systems	Same as County
	Populations	None
	Other	None
Roy Water Conservancy District	Structures	None
	Systems	Water availability would be affected if water was released from dams. Reduced availability of secondary water could have cascading impacts on culinary water usage.
	Populations	None
	Other	None
Taylor West Weber Water District	Structures	None

Plan Participant Name	Asset Type	Description
	Systems	Water availability would be affected if water was released from dams.
	Populations	None
	Other	None
Weber-Morgan Health Department	Structures	None
	Systems	Water availability would be affected if water was released from dams.
	Populations	Sanitary issues may need to be addressed for the populations impacted.
	Other	None
Weber School District	Structures	The district facilities could have a risk with the Pineview Reservoir.
	Systems	Transportation routes could be affected.
	Populations	None
	Other	None
Weber Fire District	Structures	The district covers Ogden Canyon, so the failure of the Pineview Dam could impact structures in the district.
	Systems	Roads could be damaged.
	Populations	Same as County. The district could be involved in a response to communities affected by dam failure.

Plan Participant Name	Asset Type	Description
	Other	None

Impacts

Table 30: Impacts of Dam Failure on Jurisdictions in Weber County

Plan Participant Name	Impacts
Weber County	Structures could be damaged or destroyed downstream of the HHPDs and in western Weber County. Areas downstream of the HHPDs could experience significant property damage. Failure would impact significant portions of roadways, including potential loss of life in Ogden Canyon, as well as the Eden/Liberty areas of the upper valley.
Farr West	Farmland, residential structures, and businesses along canals and tributaries could be damaged or destroyed. Transportation delays or disruptions could be experienced as roads in the potential inundation are flooded or damaged.
Harrisville	Residential structures around Independence Park may experience small-scale flooding, including damages to their property. Residents themselves may also be injured.
Hooper	Flooding could cause transportation and communication disruptions by damaging or destroy roads, power, and communication systems. Residents could be injured. Residents that require power for medical purposes could lose power, potentially putting their lives at risk.
Huntsville	Limited to a small area including a few residences. The town could be isolated preventing access to medical facilities, emergency response as well as many other issues.
Marriott-Slaterville	The city could see extensive inundation and flooding from a dam failure. Structures across the city could be flooded, as well as roads and power/communication systems. Individuals downstream of a dam failure could be injured or killed.
Ogden	Structures downstream of a dam that fails could be flooded and experience significant damage. There could be major losses to infrastructure, including the power grid, and disruptions to infrastructure such as the culinary water supply.

Plan Participant Name	Impacts
	Vulnerable populations in particular downstream of a dam failure could be injured or killed.
Plain City	Dam failure could result in in flooding for homes and residences next to the Weber River. Transportation, communication, and power systems could experience disruption or delays. People downstream of a dam failure could be harmed.
Pleasant View	The Weber High School and residential structures could be damaged or destroyed. Major infrastructure damage may occur, including to the power and communication systems. Residents and students and staff of Weber High School could be harmed.
Riverdale	Infrastructure, riverbed population, businesses, homes, and roadways could be impacted. Flooding could damage or destroy structures and systems as well as result in injury or death.
Uintah	Residences and business downstream of a dam that fails could be flooded, damaging or destroying property. Infrastructure, such as transportation routes, could be flooded, disrupting services and potentially causes damages. People could be injured or killed.
West Haven	Entire city, including infrastructure, agriculture, residential, and commercial, could be damaged or destroyed. Residents downstream of dams could be injured or killed.
Pineview Water System	Dam failure could cause flooding of nearby homes and businesses. Communication, power, and transportation could be disrupted. Services may be interrupted.
Roy Water Conservancy District	Water availability could impact the district's ability to provide services. If water systems are disrupted, customers may be impacted.
Taylor West Weber Water District	Water availability would be affected if water was released from dams. Water systems, including the district's, would consequently be impacted. Service may be interrupted, impacting customer's ability to receive culinary water.
Ogden School District	Mound Fort Junior High and Gramercy Elementary Buildings may be damaged, impacting school activities which may be cancelled or postponed, affecting student education. Employees and students within dam inundation boundary areas are at risk of injury as well.

Plan Participant Name	Impacts
Weber School District	District facilities could be damaged or destroyed. Transportation routes could be disrupted. School activities may be cancelled or postponed, affecting student education.
Weber-Morgan Health Department	Services could be impacted by lack of water availability if water was released from dams. In particular, sanitary issues in the department's service area may have to be addressed as populations will be vulnerable to these issues.
Weber Fire District	The District covers Ogden Canyon, so would be impacted by a failure of the Pineview Dam, including any transportation systems damages and potential injury or loss of life. Services may be interrupted or delayed due to transportation challenges.

Changes in Development

Overall, the risk of this hazard has increased due to the ongoing development and population increase downstream of dams in Weber County. Certain jurisdiction-specific vulnerabilities due to changes in development may further increase or decrease the overall vulnerability to this hazard.

Table 31: Dam Failure Changes in Development Summary

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Weber County	Increased	Vulnerability in Weber County has increased due to continued growth, and buildings associated with the increasing population have moved rural and suburban communities into areas prone to dam failure.
Farr West	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from dam failure.
Harrisville	Decreased	In 2022, the head gate for the dam at Independence Park was replaced with a new one, replacing an outdated head gate with issues, decreasing the risk of this hazard. The city also maintains a plan for removing debris and de-silting around the dam to ensure proper water flow.

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Hooper	Decreased	The city is developing a city emergency plan, including a push for increased CERT members.
Huntsville	Increased	The city has a new annexation located in the area of town that could be impacted by dam failure, increasing vulnerability.
Marriott–Slaterville	Increased	The city has seen population increase and pressure to allow development in dam inundation areas.
Ogden	Increased	Increase in high-density housing being built in flood areas of dam failure.
Plain City	Stayed the Same	The hazard has stayed the same. The city updated its Sensitive Land Use Ordinance for buildings in high-ground water, floodplain, or wetlands.
Pleasant View	Stayed the Same	Development that has occurred is not anticipated to have impacted this hazard type.
Riverdale	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from dam failure.
Uintah	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from dam failure.
West Haven	Stayed the Same	Since the last plan update, vulnerability has stayed the same due to minimal risk of dam failure.
Ogden School District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from dam failure.
Pineview Water Systems	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from dam failure.

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Roy Water Conservancy District	Increased	Since the last plan update, vulnerability has increased due to continued aging of the dam.
Taylor West Weber Water District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from dam failure.
Weber-Morgan Health Department	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from dam failure.
Weber School District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from dam failure.
Weber Fire District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from dam failure.

Secondary Hazards

Secondary hazards include significant property damage; displacement of communities; disruptions to infrastructure, community lifelines, utilities, and businesses; a compromised water supply; and ecological impacts.

Drought

A drought is a deficiency in precipitation over an extended period.[68] Drought is a complex hazard. No specific threshold of "dryness" exists for declaring a drought, and the definition depends on stakeholder needs. There are generally five types of droughts, as defined in Table 32.

Table 32: Types of Droughts and Their Definitions[69]

Type of Drought	Definition
Meteorological	Occurs when observed precipitation has been significantly lower than average levels over some time
Agricultural	Occurs when precipitation and soil water storage cannot satisfy the demand for water in crops
Hydrological	Occurs when surface and sub-surface water levels are significantly lower than average or normal.
Socioeconomic	Occurs when water deficiencies significantly impact an area's human population.
Ecological	Occurs when natural ecosystems are affected by drought.

It is important to understand that the absence of precipitation does not automatically mean there is a drought. A drought depends heavily on the time of year when precipitation is lacking. For instance, a single week without precipitation in July, when plants need a lot of water for photosynthesis and the sun's energy is high, could lead to a drought, but the same week without precipitation in January, when plants need less water and less water evaporates, may not trigger a drought.

Different types of droughts can be triggered or ended by various conditions. For example, agricultural droughts occur suddenly and end quickly, since crops require water frequently. When they receive rainfall, they thrive. Conversely, hydrologic droughts take longer to set in and alleviate; a few dry days won't empty a reservoir, but a week of slightly above-normal rainfall won't refill it either. In addition, drought is defined differently in various geographical regions, based on their deviation from average local precipitation. In the more humid eastern United States, drought impacts can happen more rapidly or be noticed sooner than in the naturally drier areas of the western United States.

[68] National Integrated Drought Information System, "What is Drought, Drought Basics." https://www.drought.gov/what-is-drought/drought-basics#:~:text=Related%20Content-,Defining%20Drought,resulting%20in%20a%20water%20shortage.%E2%80%9D

[69] Ibid.

Determining when a drought starts or ends can be difficult. However, various drought metrics and indicators exist, such as deviation from average precipitation, variation from normal stream flow, and soil moisture deficits. To define the onset, severity, and end of droughts, researchers have developed several drought indices that pull together data related to water supply or environmental demand. The Palmer Drought Severity Index (PDSI), also known as the Palmer Drought Index, is commonly used to measure drought. Wayne Palmer developed the PDSI in 1965 for the U.S. Weather Bureau. It measures drought by analyzing recent precipitation and temperature data concerning a basic supply-and-demand soil moisture model. It is most effective in long-term calculations.

There are three main indices used to measure drought: the Palmer Hydrologic Drought Index (PHDI), the Crop Moisture Index (CMI), and the Keetch-Byram Drought Index (KBDI). The CMI was derived from the PDSI, and the KBDI was created by John Keetch and George Byram in 1968 for the U.S. Forest Service, primarily used to predict the likelihood of wildfire outbreaks. Although the PDSI is a medium-response drought indicator, it is often used as a compromise for droughts. The objective of the PDSI is to provide standardized moisture condition measurements so that comparisons using the index can be made between locations and months.

Table 33: Palmer Drought Severity Index Classification and Range[70]

Range	Palmer Classification
4.0 or more	Extremely Wet
3.0 to 3.99	Very Wet
2.0 to 2.99	Moderately Wet
1.0 to 1.99	Slightly Wet
0.5 to 0.99	Incipient Wet Spell
0.49 to -0.49	Near Normal
-0.5 to -0.99	Incipient Dry Spell
-1.0 to -1.99	Mild Drought
-2.0 to -2.99	Moderate Drought
-3.0 to -3.99	Severe Drought
-4.0 or less	Extreme Drought

[70] National Drought Mitigation Center, "Measuring Drought." https://drought.unl.edu/ranchplan/DroughtBasics/WeatherandDrought/MeasuringDrought.aspx

The U.S. Drought Monitor is also widely used to track weekly drought development, persistence, or improvement across the United States. It is a map released every Thursday that shows parts of the U.S. that are in drought, using five categories to describe the intensity of the conditions. The Drought Monitor relies on experts to synthesize the best available data from drought indices and other sources and to work with local observers to interpret the information. The Drought Monitor also incorporates ground truthing and information about drought impacts over a nationwide network of more than 450 observers, including state climatologists, National Weather Service staff, extension agents, and hydrologists. Its drought intensity scale is shown in Table 34.

Table 34: U.S. Drought Monitor Drought Intensity Scale[71]

Range/Category	Description	PDSI Equivalent
D0	Abnormally Dry	-1.0 to -1.99
D1	Moderate Drought	-2.0 to -2.99
D2	Severe Drought	-3.0 to -3.99
D3	Extreme Drought	-4.0 to -4.99
D4	Exceptional Drought	-5.0 or less

Location

Droughts are not uncommon in Utah and the Weber County planning area. Although they happen infrequently, their intensity and duration can vary greatly. The Drought Monitor shows that the Weber County planning area is not currently experiencing drought. However, Utah has experienced abnormally dry and moderate droughts over the last year. Between 2019 and 2023, the entire state experienced record dryness and warmth, with a record drought occurring at the end of 2020, in which 90% of the state was in exceptional drought.[72] Drought does not have a distinct boundary and can occur equally throughout the planning area, including in all participating jurisdictions. Figure 49 shows drought conditions in the County in May 2024, while Figure 50shows drought conditions over the previous 10 years.

[71] Northeast Regional Climate Center, "How are Drought Conditions Classified?" https://www.nrcc.cornell.edu/services/blog/2018/06/28/index.html

[72] Utah Hazard Mitigation, "State of Utah Hazard Mitigation Plan." https://hazards.utah.gov/state-of-utah-hazard-mitigation-plan/

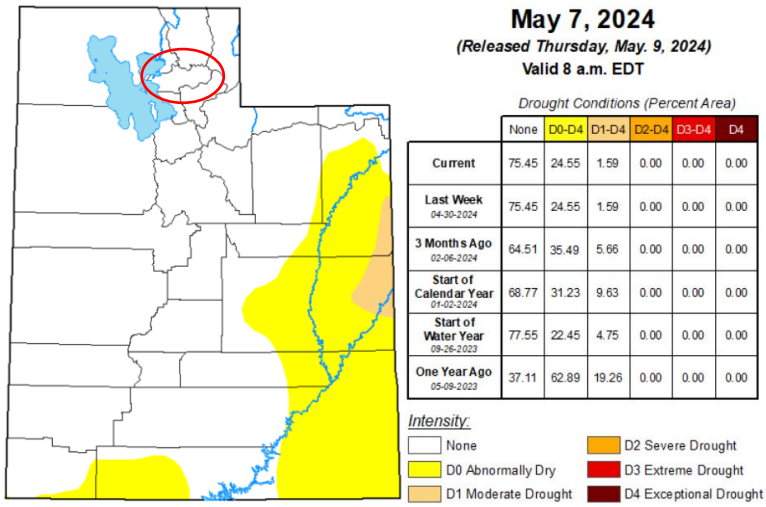


Figure 49: Drought Monitor, Weber County, Utah, May 7, 2024[73]

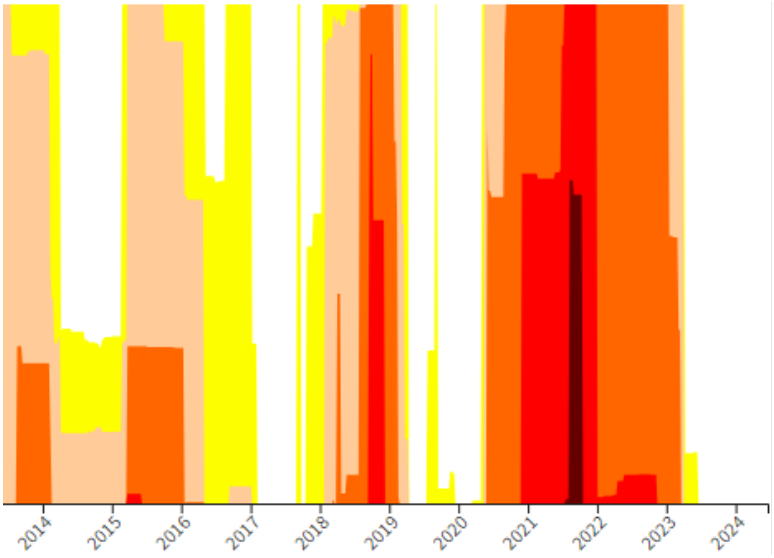


Figure 50: Drought Conditions, Weber County, 2014-2024[74]

[73] U.S. Drought Monitor, "U.S. Drought Monitor Utah." https://droughtmonitor.unl.edu/Maps/MapArchive.aspx
[74] National Integrated Drought Information System, "Drought Conditions for Weber County." https://www.drought.gov/states/utah/county/weber

Figure 51 shows the amount of water in snow relative to the national average, and Figure 52 shows the reservoir amount of water relative to the national average.

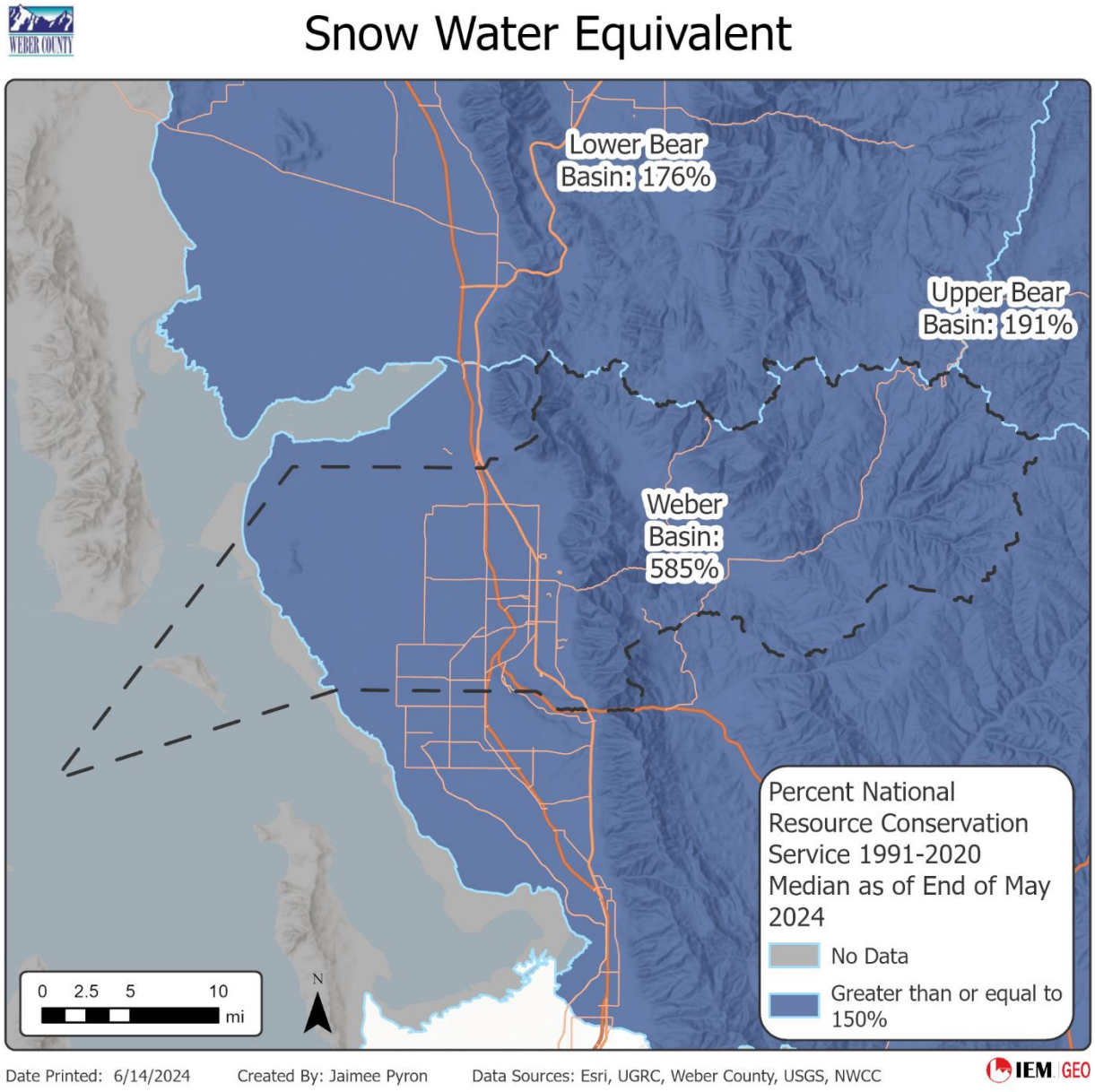


Figure 51: Weber County Snow Water Equivalent Percent of Normal

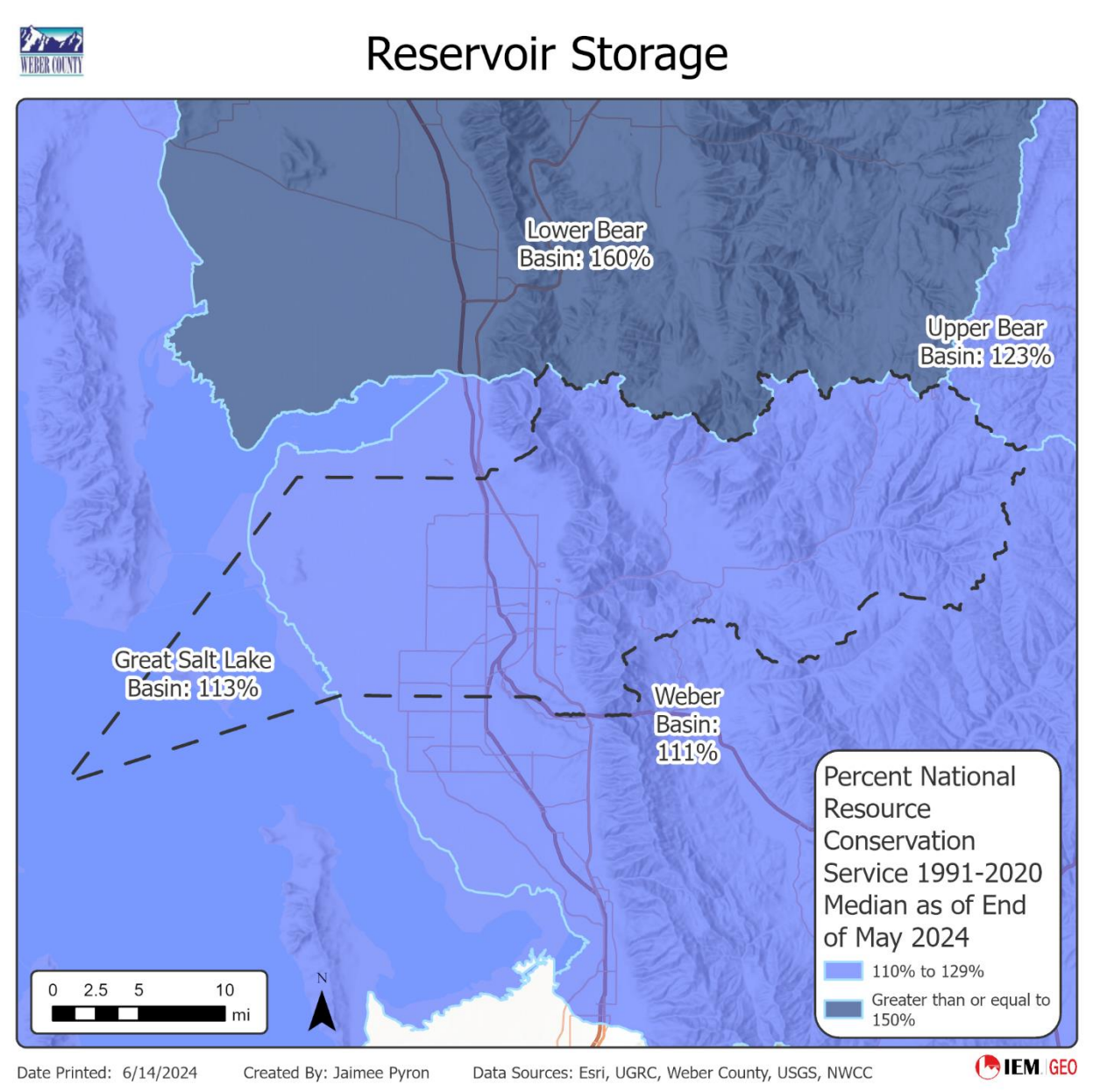


Figure 52: Weber County Reservoir Storage Percent of Normal

Magnitude/Extent

As mentioned, the Palmer Drought Index measures the extent of long-term drought by assessing the duration and intensity of drought-inducing circulation patterns. Long-term meteorological drought is cumulative, with its intensity during a given month dependent on current weather patterns and the cumulative patterns of the previous months. The hydrological impacts of drought, such as low reservoir and groundwater levels, take longer to develop, while the Z index measures short-term drought monthly.

The wide variety of disciplines affected by drought, its diverse geographical and temporal distribution, and the many scales drought operates on make it difficult to develop a definition to describe drought and an index to measure it. Many quantitative measures of droughts have been developed in the United States, depending on the discipline affected, the region being considered, and the particular application. Several indices developed by Wayne Palmer and the Standardized Precipitation Index help describe the many scales of drought.

- The **U.S. Drought Monitor** summarizes drought conditions across the United States and Puerto Rico. Often described as a blend of art and science, the map is updated weekly by combining a variety of data-based drought indices and indicators and local expert input into a single composite drought indicator.
- The **Standardized Precipitation Index** (SPI) measures drought, which differs from the Palmer Drought Index (PDI). Like the PDI, this index is negative for lack and positive for wet conditions. But the SPI is a probability index that considers only precipitation, while Palmer's indices are water balance indices that consider water supply (rain), demand (evapotranspiration), and loss (runoff).
- The **Palmer Drought Severity Index** (PDSI), devised in 1965, was the first drought indicator to assess moisture status comprehensively. It uses temperature and precipitation data to calculate water supply and demand, incorporates soil moisture, and is considered the most effective for unirrigated cropland. It primarily reflects the Perry-term drought and has been used extensively to initiate drought relief. It is more complex than the SPI and the Drought Monitor.

Figure 53 applies all extents of drought monitoring indices.

Drought Severity	Return Period (Years)	Description of Possible Impacts	Drought Monitoring Indices		
			Standardized Precipitation Index (SPI)	NDMC* Drought Category	Palmer Drought Index
Minor Drought	3 to 4	Going into drought; short-term dryness slowing growth of crops or pastures; fire risk above average. Coming out of drought; some lingering water deficits; pastures or crops not fully recovered.	-0.5 to -0.7	D0	-1.0 to -1.9
Moderate Drought	5 to 9	Some damage to crops or pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested.	-0.8 to -1.2	D1	-2.0 to -2.9
Severe Drought	10 to 17	Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed.	-1.3 to -1.5	D2	-3.0 to -3.9
Extreme Drought	18 to 43	Major crop and pasture losses; extreme fire danger; widespread water shortages or restrictions.	-1.6 to -1.9	D3	-4.0 to -4.9
Exceptional Drought	44+	Exceptional and widespread crop and pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells creating water emergencies.	less than -2	D4	-5.0 or less

*NDMC - National Drought Mitigation Center

Figure 53: Drought Extent and Impacts

Drought typically affects an entire region rather than a specific county. In Weber County, the agricultural community bears the brunt of its impact. According to the Utah Department of Agriculture and Food, the County's agricultural and livestock production had an economic impact of $49,443,000 in 2017.[75] Of the county's 368,640 acres (2023) of land, 94,361 are dedicated to agriculture and livestock production, making farming and ranching significant employers and economic drivers.[76] All jurisdictions within Weber County are equally susceptible to drought due to the nature of drought impacting an entire region.

A D4 drought is the most severe category, and its impact on agriculture and the economy can be catastrophic. It can lead to a complete lack of water, which can cause significant damage to crops, livestock, and natural habitats. A D4 drought can cause a significant decline in crop yields, leading to food shortages and increased food prices. Farmers may be forced to sell their livestock due to a lack of food and water, causing a decline in livestock prices and a significant loss of income. Moreover, a D4 drought can severely impact the overall economy, as it affects other industries that rely on agriculture, such as food processing, transportation, and retail. The loss of income from agriculture and related industries can lead to job losses, reduced consumer spending, and lower tax revenues. A D4 drought can cause significant economic and social disruptions, making preparing for and mitigating its impact essential.

[75] Agriculture Extension Utah State University, "Size and Scope of Weber Agriculture 2019." https://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=3107&context=extension_curall#:~:text=The%202017%20Census%20of%20Agriculture,which%2022%2C238%20acres%20were%20harvested

[76] Ibid.

The current expected annual economic loss in Weber County from drought is $49,109,089.21 for buildings and $20,855.32 for agriculture (see Figure 54). This is moderate compared with the rest of the United States.

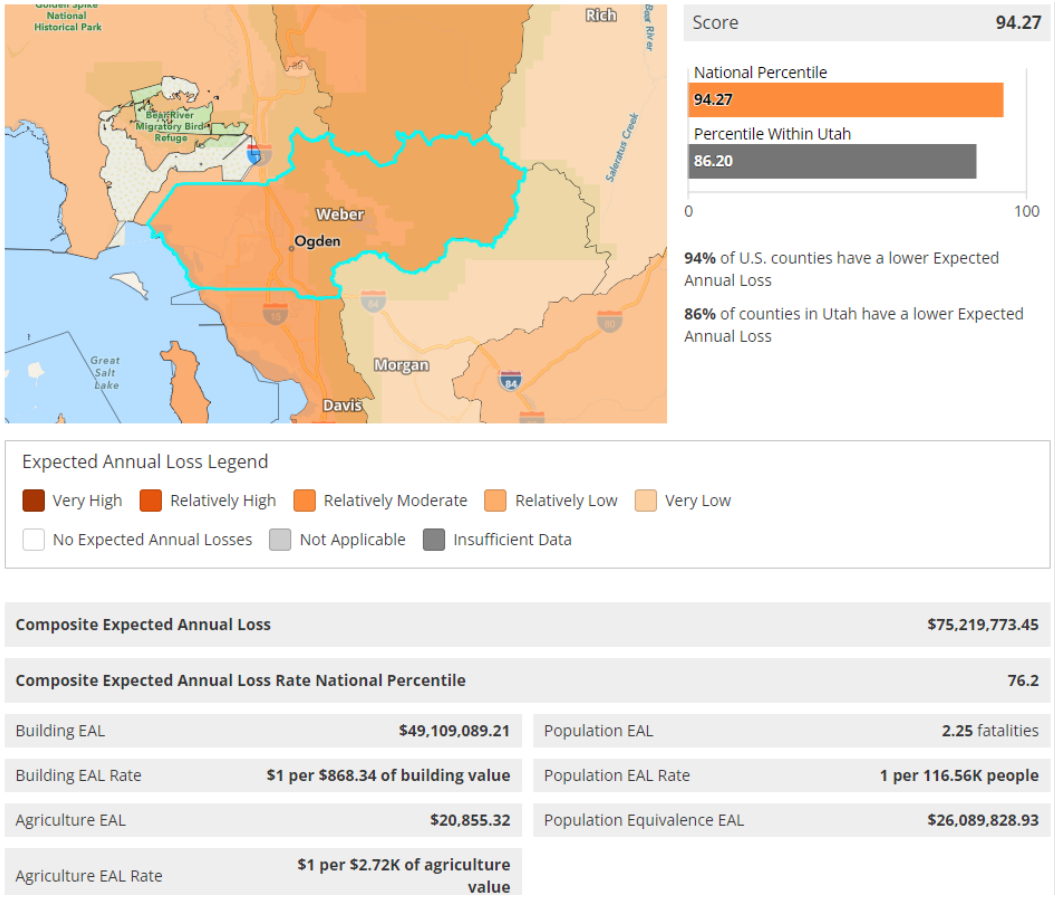


Figure 54: Expected Annual Loss from Drought, Weber County[77]

Drought could impact the entire county excluding North Ogden, Ogden School District, Central Weber Sewer Improvement District, and North View Fire District where risk is minimal,

Previous Occurrences

Based on the FEMA Disaster Declarations Database, Weber County has received no designation for drought disaster declarations since the last plan update.

Information redacted from the spreadsheet provided on Drought.gov and displayed in Table 35 lists the 251 droughts in Weber County of D1 significance or greater from 09/13/2016 to 04/06/2023. The Governor's executive orders and the States of Emergency due to drought conditions are listed in Table 36.

[77] FEMA National Risk Index, "Weber County, Utah Summary" https://hazards.fema.gov/nri/report/viewer?dataLOD=Counties&dataIDs=C49057

Table 35: Drought Occurrences, Weber County, 09/2016-04/2023[78]

D0	D1	D2	D3	D4	Start Date	End Date
100	100	0	0	0	3/28/2023	4/3/2023
100	100	0	0	0	3/21/2023	3/27/2023
100	100	34.75	0	0	3/14/2023	3/20/2023
100	100	34.75	0	0	3/7/2023	3/13/2023
100	100	53.3	0	0	2/28/2023	3/6/2023
100	100	53.3	0	0	2/21/2023	2/27/2023
100	100	53.3	0	0	2/14/2023	2/20/2023
100	100	53.3	0	0	2/7/2023	2/13/2023
100	100	53.58	0	0	1/31/2023	2/6/2023
100	100	53.58	0	0	1/24/2023	1/30/2023
100	100	53.58	0	0	1/17/2023	1/23/2023
100	100	100	0	0	1/10/2023	1/16/2023
100	100	100	0	0	1/3/2023	1/9/2023
100	100	100	0	0	12/27/2022	1/2/2023
100	100	100	0	0	12/20/2022	12/26/2022
100	100	100	0	0	12/13/2022	12/19/2022
100	100	100	0	0	12/6/2022	12/12/2022
100	100	100	0	0	11/29/2022	12/5/2022
100	100	100	0	0	11/22/2022	11/28/2022

[78] National Integrated Drought Information System, "Drought Conditions for Weber County, Historical Conditions for Weber County." https://www.drought.gov/states/utah/county/weber

D0	D1	D2	D3	D4	Start Date	End Date
100	100	100	0	0	11/15/2022	11/21/2022
100	100	100	5.74	0	11/8/2022	11/14/2022
100	100	100	5.74	0	11/1/2022	11/7/2022
100	100	100	5.74	0	10/25/2022	10/31/2022
100	100	100	5.74	0	10/18/2022	10/24/2022
100	100	100	5.74	0	10/11/2022	10/17/2022
100	100	100	5.85	0	10/4/2022	10/10/2022
100	100	100	5.85	0	9/27/2022	10/3/2022
100	100	100	5.85	0	9/20/2022	9/26/2022
100	100	100	5.85	0	9/13/2022	9/19/2022
100	100	100	5.85	0	9/6/2022	9/12/2022
100	100	100	5.85	0	8/30/2022	9/5/2022
100	100	100	5.85	0	8/23/2022	8/29/2022
100	100	100	5.85	0	8/16/2022	8/22/2022
100	100	100	5.85	0	8/9/2022	8/15/2022
100	100	100	5.76	0	8/2/2022	8/8/2022
100	100	100	5.76	0	7/26/2022	8/1/2022
100	100	100	5.76	0	7/19/2022	7/25/2022
100	100	100	5.76	0	7/12/2022	7/18/2022
100	100	100	5.76	0	7/5/2022	7/11/2022
100	100	100	5.76	0	6/28/2022	7/4/2022

D0	D1	D2	D3	D4	Start Date	End Date
100	100	100	5.76	0	6/21/2022	6/27/2022
100	100	100	5.76	0	6/14/2022	6/20/2022
100	100	100	5.76	0	6/7/2022	6/13/2022
100	100	100	5.76	0	5/31/2022	6/6/2022
100	100	100	5.76	0	5/24/2022	5/30/2022
100	100	100	4.47	0	5/17/2022	5/23/2022
100	100	100	4.47	0	5/10/2022	5/16/2022
100	100	100	4.47	0	5/3/2022	5/9/2022
100	100	100	4.47	0	4/26/2022	5/2/2022
100	100	100	4.47	0	4/19/2022	4/25/2022
100	100	100	1.73	0	4/12/2022	4/18/2022
100	100	100	1.73	0	4/5/2022	4/11/2022
100	100	100	1.73	0	3/29/2022	4/4/2022
100	100	100	1.5	0	3/22/2022	3/28/2022
100	100	100	1.5	0	3/15/2022	3/21/2022
100	100	100	1.5	0	3/8/2022	3/14/2022
100	100	100	1.5	0	3/1/2022	3/7/2022
100	100	100	1.5	0	2/22/2022	2/28/2022
100	100	100	1.5	0	2/15/2022	2/21/2022
100	100	100	1.5	0	2/8/2022	2/14/2022
100	100	100	1.21	0	2/1/2022	2/7/2022

D0	D1	D2	D3	D4	Start Date	End Date
100	100	100	1.21	0	1/25/2022	1/31/2022
100	100	100	1.21	0	1/18/2022	1/24/2022
100	100	100	1.21	0	1/11/2022	1/17/2022
100	100	100	1.21	0	1/4/2022	1/10/2022
100	100	100	100	0	12/28/2021	1/3/2022
100	100	100	100	0	12/21/2021	12/27/2021
100	100	100	100	0	12/14/2021	12/20/2021
100	100	100	100	0	12/7/2021	12/13/2021
100	100	100	100	0	11/30/2021	12/6/2021
100	100	100	100	0	11/23/2021	11/29/2021
100	100	100	100	0	11/16/2021	11/22/2021
100	100	100	100	0	11/9/2021	11/15/2021
100	100	100	100	0	11/2/2021	11/8/2021
100	100	100	100	0	10/26/2021	11/1/2021
100	100	100	100	0	10/19/2021	10/25/2021
100	100	100	100	61.81	10/12/2021	10/18/2021
100	100	100	100	61.81	10/5/2021	10/11/2021
100	100	100	100	61.81	9/28/2021	10/4/2021
100	100	100	100	61.81	9/21/2021	9/27/2021
100	100	100	100	61.81	9/14/2021	9/20/2021
100	100	100	100	61.81	9/7/2021	9/13/2021

D0	D1	D2	D3	D4	Start Date	End Date
100	100	100	100	61.81	8/31/2021	9/6/2021
100	100	100	100	64.74	8/24/2021	8/30/2021
100	100	100	100	64.74	8/17/2021	8/23/2021
100	100	100	100	64.74	8/10/2021	8/16/2021
100	100	100	100	0.84	8/3/2021	8/9/2021
100	100	100	100	0.84	7/27/2021	8/2/2021
100	100	100	100	0.84	7/20/2021	7/26/2021
100	100	100	100	0	7/13/2021	7/19/2021
100	100	100	91.68	0	7/6/2021	7/12/2021
100	100	100	91.87	0	6/29/2021	7/5/2021
100	100	100	66.88	0	6/22/2021	6/28/2021
100	100	100	66.33	0	6/15/2021	6/21/2021
100	100	100	66.33	0	6/8/2021	6/14/2021
100	100	100	66.33	0	6/1/2021	6/7/2021
100	100	100	66.33	0	5/25/2021	5/31/2021
100	100	100	65.12	0	5/18/2021	5/24/2021
100	100	100	65.12	0	5/11/2021	5/17/2021
100	100	100	65.12	0	5/4/2021	5/10/2021
100	100	100	65.12	0	4/27/2021	5/3/2021
100	100	100	65.12	0	4/20/2021	4/26/2021
100	100	100	65.12	0	4/13/2021	4/19/2021

D0	D1	D2	D3	D4	Start Date	End Date
100	100	100	65.12	0	4/6/2021	4/12/2021
100	100	100	65.12	0	3/30/2021	4/5/2021
100	100	100	65.12	0	3/23/2021	3/29/2021
100	100	100	65.12	0	3/16/2021	3/22/2021
100	100	100	65.12	0	3/9/2021	3/15/2021
100	100	100	65.12	0	3/2/2021	3/8/2021
100	100	100	65.12	0	2/23/2021	3/1/2021
100	100	100	66.11	0	2/16/2021	2/22/2021
100	100	100	66.11	0	2/9/2021	2/15/2021
100	100	100	66.11	0	2/2/2021	2/8/2021
100	100	100	66.11	0	1/26/2021	2/1/2021
100	100	100	66.11	0	1/19/2021	1/25/2021
100	100	100	66.11	0	1/12/2021	1/18/2021
100	100	100	66.11	0	1/5/2021	1/11/2021
100	100	100	66.11	0	12/29/2020	1/4/2021
100	100	100	66.11	0	12/22/2020	12/28/2020
100	100	100	66.11	0	12/15/2020	12/21/2020
100	100	100	66.11	0	12/8/2020	12/14/2020
100	100	100	66.11	0	12/1/2020	12/7/2020
100	100	100	0	0	11/24/2020	11/30/2020
100	100	100	0	0	11/17/2020	11/23/2020

D0	D1	D2	D3	D4	Start Date	End Date
100	100	100	0	0	11/10/2020	11/16/2020
100	100	100	0	0	11/3/2020	11/9/2020
100	100	100	0	0	10/27/2020	11/2/2020
100	100	100	0	0	10/20/2020	10/26/2020
100	100	100	0	0	10/13/2020	10/19/2020
100	100	100	0	0	10/6/2020	10/12/2020
100	100	100	0	0	9/29/2020	10/5/2020
100	100	100	0	0	9/22/2020	9/28/2020
100	100	100	0	0	9/15/2020	9/21/2020
100	100	100	0	0	9/8/2020	9/14/2020
100	100	92.46	0	0	9/1/2020	9/7/2020
100	100	61.43	0	0	8/25/2020	8/31/2020
100	100	61.43	0	0	8/18/2020	8/24/2020
100	100	61.43	0	0	8/11/2020	8/17/2020
100	100	61.43	0	0	8/4/2020	8/10/2020
100	100	61.43	0	0	7/28/2020	8/3/2020
100	100	61.43	0	0	7/21/2020	7/27/2020
100	100	61.43	0	0	7/14/2020	7/20/2020
100	100	61.43	0	0	7/7/2020	7/13/2020
100	100	61.43	0	0	6/30/2020	7/6/2020
100	100	61.43	0	0	6/23/2020	6/29/2020

D0	D1	D2	D3	D4	Start Date	End Date
100	100	62.64	0	0	6/16/2020	6/22/2020
100	100	62.64	0	0	6/9/2020	6/15/2020
100	100	75.79	0	0	6/2/2020	6/8/2020
100	100	0	0	0	5/26/2020	6/1/2020
100	100	0	0	0	5/19/2020	5/25/2020
100	13.04	0	0	0	4/9/2019	4/15/2019
100	12.82	0	0	0	4/2/2019	4/8/2019
100	12.82	0	0	0	3/26/2019	4/1/2019
100	55.86	0	0	0	3/19/2019	3/25/2019
100	56.05	0	0	0	3/12/2019	3/18/2019
100	100	0	0	0	3/5/2019	3/11/2019
100	100	0	0	0	2/26/2019	3/4/2019
100	100	1.26	0	0	2/19/2019	2/25/2019
100	100	57.25	0	0	2/12/2019	2/18/2019
100	100	72.52	0	0	2/5/2019	2/11/2019
100	100	72.52	0	0	1/29/2019	2/4/2019
100	100	100	0	0	1/22/2019	1/28/2019
100	100	100	0	0	1/15/2019	1/21/2019
100	100	100	0	0	1/8/2019	1/14/2019
100	100	100	0	0	1/1/2019	1/7/2019
100	100	100	0	0	12/25/2018	12/31/2018

D0	D1	D2	D3	D4	Start Date	End Date
100	100	100	0	0	12/18/2018	12/24/2018
100	100	100	0	0	12/11/2018	12/17/2018
100	100	100	56.75	0	12/4/2018	12/10/2018
100	100	100	56.75	0	11/27/2018	12/3/2018
100	100	100	56.75	0	11/20/2018	11/26/2018
100	100	100	56.75	0	11/13/2018	11/19/2018
100	100	100	56.75	0	11/6/2018	11/12/2018
100	100	100	56.75	0	10/30/2018	11/5/2018
100	100	100	56.75	0	10/23/2018	10/29/2018
100	100	100	56.75	0	10/16/2018	10/22/2018
100	100	100	56.75	0	10/9/2018	10/15/2018
100	100	100	89.99	0	10/2/2018	10/8/2018
100	100	100	89.99	0	9/25/2018	10/1/2018
100	100	100	54.58	0	9/18/2018	9/24/2018
100	100	100	0	0	9/11/2018	9/17/2018
100	100	100	0	0	9/4/2018	9/10/2018
100	100	99.28	0	0	8/28/2018	9/3/2018
100	100	99.28	0	0	8/21/2018	8/27/2018
100	100	99.28	0	0	8/14/2018	8/20/2018
100	100	99.28	0	0	8/7/2018	8/13/2018
100	100	99.28	0	0	7/31/2018	8/6/2018

D0	D1	D2	D3	D4	Start Date	End Date
100	98.7	5.72	0	0	7/24/2018	7/30/2018
100	98.54	5.72	0	0	7/17/2018	7/23/2018
100	98.41	5.72	0	0	7/10/2018	7/16/2018
100	98.65	5.72	0	0	7/3/2018	7/9/2018
100	98.65	5.72	0	0	6/26/2018	7/2/2018
100	98.65	5.72	0	0	6/19/2018	6/25/2018
100	98.65	5.72	0	0	6/12/2018	6/18/2018
100	98.96	5.72	0	0	6/5/2018	6/11/2018
100	98.96	5.72	0	0	5/29/2018	6/4/2018
100	98.96	5.72	0	0	5/22/2018	5/28/2018
100	96.01	1.96	0	0	5/15/2018	5/21/2018
100	95.65	1.96	0	0	5/8/2018	5/14/2018
100	95.65	1.96	0	0	5/1/2018	5/7/2018
100	95.65	1.96	0	0	4/24/2018	4/30/2018
100	96.86	42.01	0	0	4/17/2018	4/23/2018
100	96.86	42.01	0	0	4/10/2018	4/16/2018
100	96.86	42.01	0	0	4/3/2018	4/9/2018
100	95.81	0	0	0	3/27/2018	4/2/2018
100	97.58	0	0	0	3/20/2018	3/26/2018
100	97.58	0.76	0	0	3/13/2018	3/19/2018
100	93.24	0	0	0	3/6/2018	3/12/2018

D0	D1	D2	D3	D4	Start Date	End Date
100	93.24	0	0	0	2/27/2018	3/5/2018
100	93.24	0	0	0	2/20/2018	2/26/2018
100	93.24	0	0	0	2/13/2018	2/19/2018
100	92.09	0	0	0	2/6/2018	2/12/2018
100	92.21	0	0	0	1/30/2018	2/5/2018
100	3.38	0	0	0	1/3/2017	1/9/2017
100	3.38	0	0	0	12/27/2016	1/2/2017
100	3.38	0	0	0	12/20/2016	12/26/2016
100	3.38	0	0	0	12/13/2016	12/19/2016
100	3.38	0	0	0	12/6/2016	12/12/2016
100	3.38	0	0	0	11/29/2016	12/5/2016
100	3.38	0	0	0	11/22/2016	11/28/2016
100	3.38	0	0	0	11/15/2016	11/21/2016
100	3.38	0	0	0	11/8/2016	11/14/2016
100	3.38	0	0	0	11/1/2016	11/7/2016
100	3.38	0	0	0	10/25/2016	10/31/2016
100	3.38	0	0	0	10/18/2016	10/24/2016
100	3.38	0	0	0	10/11/2016	10/17/2016
100	3.38	0	0	0	10/4/2016	10/10/2016
100	3.38	0	0	0	9/27/2016	10/3/2016
100	3.38	0	0	0	9/20/2016	9/26/2016

D0	D1	D2	D3	D4	Start Date	End Date
100	3.38	0	0	0	9/13/2016	9/19/2016
31.98	0	0	0	0	1/31/2017	2/6/2017
31.98	0	0	0	0	1/24/2017	1/30/2017
31.98	0	0	0	0	1/17/2017	1/23/2017
31.98	0	0	0	0	1/10/2017	1/16/2017
100	3.38	0	0	0	1/3/2017	1/9/2017
100	3.38	0	0	0	12/27/2016	1/2/2017
100	3.38	0	0	0	12/20/2016	12/26/2016
100	3.38	0	0	0	12/13/2016	12/19/2016
100	3.38	0	0	0	12/6/2016	12/12/2016
100	3.38	0	0	0	11/29/2016	12/5/2016
100	3.38	0	0	0	11/22/2016	11/28/2016
100	3.38	0	0	0	11/15/2016	11/21/2016
100	3.38	0	0	0	11/8/2016	11/14/2016
100	3.38	0	0	0	11/1/2016	11/7/2016
100	3.38	0	0	0	10/25/2016	10/31/2016
100	3.38	0	0	0	10/18/2016	10/24/2016
100	3.38	0	0	0	10/11/2016	10/17/2016
100	3.38	0	0	0	10/4/2016	10/10/2016
100	3.38	0	0	0	9/27/2016	10/3/2016
100	3.38	0	0	0	9/20/2016	9/26/2016

D0	D1	D2	D3	D4	Start Date	End Date
100	3.38	0	0	0	9/13/2016	9/19/2016

Table 36: Executive Orders and States of Emergencies 2015-2024[79]

Executive Order/State of Emergency	Date
2023–07	May 10, 2023
2022–04	April 21, 2022
State of Emergency	March 17, 2021
2021–10	May 3, 2021
State of Emergency	May 13, 2021
2018–9	October 15, 2018[80]
2015–4	June 3, 2015[81]

On April 3, 2022, the Weber Basin Water Conservancy District implemented strict water restrictions due to decreased snowpack and low runoff. Measures included reduced water deliveries, limited outdoor watering, and purchasing water from the Provo River. Utah lawmakers also approved a turf buyback program to reduce water use in response to severe drought conditions in the state.[82]

On June 17, 2021, extreme drought in Utah forced some farmers to abandon their crops in parched fields to survive a very dry year. Many farmers described this as the worst growing season they had ever experienced. Letting go of their dry crops resulted in significant financial losses for some farmers.

Severe restrictions on the water available to farmers resulted in some crops dying on the west side of Weber County. Farmers were faced with tough decisions about which fields to water. Regrettably, the insufficient quantity and limited duration of available water resulted in an inability to irrigate all fields adequately. This resulted in a lack of feed for dairy cows. As a result, some farmers bought feed from others

[79] Utah Govops Office of Administrative Rules, "Executive Documents." https://rules.utah.gov/publications/executive-documents/
[80] Utah Govops Office of Administrative Rules, "Executive Documents of Gary R. Hubert." https://rules.utah.gov/publications/executive-documents/executive-documents-of-gary-r-herbert/
[81] Ibid.
[82] Desert News, "We're in a World of Hurt: Drought Leads to Tough Restrictions in Weber-Ogden Basin." https://www.deseret.com/utah/2022/4/3/23006424/west-drought-water-restrictions-secondary-culinary-sod-reservoir-storage-water-rights-utah-weber/

who also were experiencing a shortage. The increased demand led to higher prices and the selling-off of cattle.

One farmer who exclusively grew feed expressed concerns about not having enough to meet demand. Many farmers struggled to break even when factoring in the losses from abandoned crops alongside the money already invested.[83]

The U.S. drought monitor shows that Utah's drought conditions have been improving. As of March 12, 2024, 69.12% of Utah's land is not experiencing any drought conditions, and only 30.88% is experiencing abnormally dry conditions.[84] The annualized frequency of droughts of D1 or higher in Weber County is 31.37%. This information is based on 251 droughts reported over an eight-year period by Drought.gov from 09/2016-04/2023.

Probability of Future Occurrences

The high historical frequency for drought, including 251 reports of this hazard in Weber County between 2016 and 2023, indicate this hazard is a **Highly Likely** event.

Climate change is expected to significantly impact the risk of future droughts in Weber County. Rising temperatures and changing precipitation patterns will likely contribute to prolonged periods of reduced water availability, leading to more frequent and severe drought conditions in Weber County and throughout the state. When less water is available, it can lead to decreased soil moisture, which affects the ability of plants to grow and thrive. This reduction in vegetation can lead to a feedback loop, as the lack of plants further reduces the overall water content in the area.

In addition, reduced water availability can impact the hydrological cycle, leading to changes in precipitation patterns. Weber County may have fewer clouds and less rainfall, with less water available for evaporation and subsequent cloud formation. This can prolong periods of dryness and exacerbate the conditions that contribute to drought.

Reduced water availability can impact water sources, such as rivers, lakes, and reservoirs, affecting the agricultural, industrial, and domestic water supply. As a result, agricultural production may decrease, leading to food shortages and economic stress. These factors combined can contribute to more frequent and severe drought conditions in regions experiencing reduced water availability. In addition, higher temperatures can increase evaporation rates, further exacerbating water scarcity during dry periods.

The potential effects of climate change on Weber County's water resources and agriculture include decreased snowpack, earlier snowmelt, and changes in the timing and intensity of precipitation. These

[83] KSL, "Drought Forces Farmers to Abandoned Fields." https://ksltv.com/464617/drought-forces-farmers-to-abandoned-fields-of-dry-crops/

[84] The Daily Universe, "Utah's Snowpack Surge Impacts Drought, Lake Levels." https://universe.byu.edu/2024/03/18/utahs-snowpack-surge-impacts-draught-lake-levels/#:~:text=The%20U.S.%20drought%20monitor%20shows,land%20experiencing%20abnormally%20dry%20conditions.

changes can affect water availability for irrigation, drinking water supplies, and overall health of the ecosystem.

The public expressed concern about drought and felt that more must be done for water conservation. One member of the public observed that government properties tended not to reduce their use of water during droughts and that, if there was a mandate to reduce water use, it should include all properties—government, hospitals, manufacturing, and private residences.

Vulnerability Analysis

Communities across Weber County are at-risk to drought. At-risk assets to drought include water, agriculture, transportation, wildfire, and ecosystems. People are also at-risk to drought including potential public health and water quality impacts.

Table 37: Drought Vulnerability Assessment

Plan Participant Name	Asset Type	Description
Weber County	Structures	Homes and business may face water restrictions to conserve water supply.
	Systems	Agriculture and related businesses may experience losses due to drought conditions.
	Populations	Farmers or those involved in agriculture. Drought impacts water quality and may affect public health.
	Other	None
Farr West	Structures	Same as County
	Systems	Farming and local business rely on water resources.
	Populations	Reduced access to water supply.
	Other	Economic impact varies depending on duration of the drought.
Harrisville	Structures	Same as County
	Systems	Water supply needs to be managed every year to meet future needs.

Plan Participant Name	Asset Type	Description
	Populations	Seniors, particularly those with mobility issues or living alone, may be more vulnerable to heat/health impacts if water supply is limited.
	Other	None
Hooper	Structures	Same as County
	Systems	Farming: crops and cattle, financial impacts
	Populations	Farmers
	Other	None
Huntsville	Structures	Same as County
	Systems	Water sources could be impacted.
	Populations	All residents could be impacted by reduced water supply.
	Other	None
Marriott-Slaterville	Structures	Same as County
	Systems	Drought may result in crop failure and economic losses.
	Populations	None
	Other	None
Ogden	Structures	Same as County
	Systems	May disrupt water supply for the whole city.
	Populations	All residents could be impacted by reduced water supply.

Plan Participant Name	Asset Type	Description
	Other	None
Pleasant View	Structures	Same as County
	Systems	Same as County
	Popula-tions	Same as County
	Other	None
Riverdale	Structures	None
	Systems	Same as County
	Popula-tions	The entire population could be affected by drought.
	Other	None
Roy	Structures	None
	Systems	Culinary and secondary water supplies could be reduced, and water levels in city wells could be lowered. Demands on culinary water would increase if secondary water use is severely restricted.
	Popula-tions	Same as County
	Other	None
South Ogden	Structures	Households, businesses, and critical facilities like hospitals and schools could be impacted by strained municipal water supplies.
	Systems	Reduced water availability could compromise firefighting capabilities.
	Popula-tions	The elderly population is particularly vulnerable during drought conditions due to potential dehydration and heat-

Plan Participant Name	Asset Type	Description
		related illnesses. Water restrictions can limit their ability to maintain personal hygiene and hydration, especially for those with limited mobility or living alone.
	Other	None
Uintah	Structures	Same as County
	Systems	Ditch water currently available to the city and a river running along the city are important water resource which could be affected by drought.
	Popula-tions	Same as County
	Other	None
Washington Ter-race	Structures	None
	Systems	Water supply is vulnerable and water delivery system is in need of upgrades.
	Popula-tions	Same as County
	Other	None
West Haven	Structures	None
	Systems	Entire city, including agricultural lands, could be impacted by drought.
	Popula-tions	Same as County
	Other	None
Pineview Water System	Structures	None

Plan Participant Name	Asset Type	Description
	Systems	Concerns about overuse of water supply.
	Population	None
	Other	None
Roy Water Conservancy District	Structures	None
	Systems	Water supply is at risk to drought.
	Population	None
	Other	None
Taylor West Weber Water District	Structures	None
	Systems	Prolonged drought can diminish water supply and lead to lack of water to deliver.
	Population	None
	Other	None
Weber Morgan Health Department	Structures	None
	Systems	Water system
	Population	Vulnerable populations in Weber County are more likely to experience negative impacts from water restrictions.
	Other	None
Weber School District	Structures	None

Plan Participant Name	Asset Type	Description
	Systems	Water shortage or restrictions may affect the ability to maintain fields and grounds.
	Population	None
	Other	School activities on impacted fields and grounds may be affected.
West Warren-Warren Water Improvement District	Structures	None
	Systems	Drought could affect water supply to entire community we provide water for.
	Populations	Water shortage could affect everyone in service area.
	Other	None
Weber Fire District	Structures	None
	Systems	The district serves an area that includes many agricultural areas that could be affected by drought. Drought may increase susceptibility to fire and increase need for response. Reductions in water supply could affect availability for fire suppression.
	Populations	Water shortage could affect everyone in service area.
	Other	None

Impacts

Droughts can have significant environmental, agricultural, health, and economic impacts. Common direct impacts include diminished crop yields or total crop loss, the depletion of aquifers, livestock mortality, soil erosion, dust storms, wildfires, reduced electricity production from hydroelectric dams, and reduced water quality or availability. Drought can impact surface water and groundwater availability and harm human

populations. The indirect consequences of drought, such as unemployment, reduced tax revenues, increased food prices, reduced outdoor recreation opportunities, higher energy costs as water levels in reservoirs decline and consumption increases, and water rationing are not often fully known. This complex web of impacts causes droughts to affect people and economies well beyond the area physically experiencing the drought.

The following are a few examples of the far-reaching consequences of drought.[85]

- **Agriculture**: Drought is a weather condition that can decrease the water available for productive farms, ranches, and grazing lands. This can lead to a decrease in water quality, negatively impacting agricultural production and critical ecosystem services. Drought can also contribute to insect outbreaks, increase the risk of wildfires, and alter the rates of cycling carbon, nutrients, and water. All of these factors can have significant impacts on agricultural production and the environment.
- **Transportation**: Drought can significantly impact transportation and supply chains due to its effects on port and waterway operations. Moreover, drought conditions can cause higher temperatures that can damage roads, airport runways, and rail lines, leading to increased transportation costs.
- **Wildfire**: Drought, hot and windy weather, and dried-out vegetation can increase the risk of large wildfires.
- **Public Health**: Drought can lead to a range of negative health outcomes, including decreased availability and quality of water, increased incidence of illness and disease (e.g., Valley Fever), adverse mental health outcomes as people's livelihoods are threatened, and an overall increase in mortality rates.
- **Ecosystems**: Drought can negatively affect healthy ecosystems, such as reduced plant growth, local species extinction, and landscape-level transitions, like a forest becoming a grassland.
- **Water Quality:** During drought, reduced water levels, higher temperatures, and soil erosion can cause algae growth, reduced levels of dissolved oxygen, and increased water turbidity, which can pose health risks for humans and aquatic life.

According to the NRI, Weber County has a very low drought risk. A community such as Weber County, with a relatively moderate expected annual loss, a relatively low social vulnerability, and very high community resilience, may still be at risk of drought. While the community may have the resources and ability to bounce back quickly from a drought, it may still experience some negative impacts, such as decreased agricultural production, reduced tourism revenue, and a decline in overall economic activity. However, due to the community's high level of resilience, it will likely be able to recover quickly from any short-term impacts and continue to thrive in the long run. Figure 55 displays the drought risk for Weber County.

[85] National Integrated Drought Information System, "What is Drought, Drought Basics." https://www.drought.gov/what-is-drought/drought-basics#:~:text=Related%20Content-,Defining%20Drought,resulting%20in%20a%20water%20shortage.%E2%80%9D



Figure 55: Weber County Drought Risk[86]

Table 38 presents detailed data on the risk exposure values and the associated costs of the project in the event of drought. This information is essential for assessing the financial impact and risk mitigation strategies related to the project.

Table 38: Drought Risk Exposure Value, Weber County[87]

Building Value	Population Equivalence	Population	Agricul-ture	Total
N/A	N/A	N/A	$25,417,313	$25,417,313

Table 39 and Table 40 present the estimated annual financial losses to buildings and population in Weber County caused by drought. These data provide an overview of the projected economic impact of droughts on the area, considering both structural damage to buildings and potential effects on the population.

Table 39: Expected Annual Loss from Drought, Weber County[88]

Building Value	Population Equivalence	Population	Agricul-ture	Total
N/A	N/A	N/A	$12,272	$12,272

Table 40: Expected Annual Loss from Drought to Jurisdictions in Weber County[89]

Jurisdiction	Expected Annual Loss	Exposure Loss	Vulnerability Score
Farr West	$161	$360K	Very Low

[86] FEMA, "National Risk Index." https://hazards.fema.gov/nri/map#
[87] FEMA, "National Risk Index Weber County Utah." https://hazards.fema.gov/nri/report/viewer?dataLOD=Counties&dataIDs=C49057#SectionExpectedAnnualLoss
[88] Ibid.
[89] Ibid.

Jurisdiction	Expected Annual Loss	Exposure Loss	Vulnerability Score
Harrisville	$35	$74K	Very Low
Hooper	$98	$229K	Very Low
Huntsville	$1,100	$2.2M	Relatively Low
Marriott–Slaterville	$184	383K	Very Low
Ogden	$0	$0	N/A
Plain City	$996	$2.2M	Relatively Low
Pleasant View	$153	$342K	Very Low
Riverdale	$52	$109K	Very Low
Roy	$0	$0	N/A
South Ogden	$0	$0	N/A
Uintah	$129	$269K	Very Low
Washington Terrace	$27	$57K	Very Low
West Haven	$493	$1.1M	Relatively Low

Table 41: Impacts of Drought by Jurisdiction

Plan Participant Name	Impacts
Weber County	The county's economy is largely based on agriculture, which generates a large portion of the revenue, and multiple processes rely on a healthy Great Salt Lake environment. If drought persists for a significant period, it could create significant losses to the economy. Additional, homes and businesses could have reduced water and water quality. Public health could be impacted by prolonged drought. As climate change becomes more prevalent, this will become a greater concern.
Farr West	A drought could greatly reduce water availability for human consumption and supply to farming, local businesses, and industries that rely on water resources. The duration of the drought would determine the economic impact; therefore, the effect on the local economy is not measurable. Public health could also be negatively impacted by reduced access to water supply. A plan to assist the city and its residents in advance of a drought would be beneficial.
Harrisville	Harrisville City's water supply could be put under strain due to drought. Drought could adversely affect those with mobility issues or those who live alone. It could also harm senior populations, who are more vulnerable to extreme heat problems if they have a limited supply of water.

Plan Participant Name	Impacts
Hooper	Farmers could be financially impacted. Crops and cattle could be harmed or destroyed. Population changes and land use changes may occur if prolonged drought lasts and ruins crops.
Huntsville	Drought could impact the city's water sources, reducing the availability of water. Residents, including the elderly and more vulnerable populations who are more susceptible to the impacts of extreme heat without water, could experience reduced water supply and the associated health concerns.
Marriott-Slaterville	The city could experience crop failure due to drought. This could result in economic losses.
Ogden	The water supply for the city could be impacted. Reduced water availability could impact the health of all residents, including socially vulnerable populations such as the elderly.
Pleasant View	Water supply could be affected. Homes and businesses may experience reduced water quality and water supply. Public health could be affected due to reduced or delayed water supply. Economic losses could occur.
Riverdale	Riverdale's water systems could be impacted, disrupting access to water resources. The population could experience negative health impacts from reduced water availability. Vulnerable populations like seniors and low-income community members would be most at-risk during a high-risk event such as from extreme heat.
Roy	Culinary and secondary water supplies could be reduced, and water levels in city wells could be lowered. If secondary water uses were severely restricted, the demand for culinary water supplies would increase. Water systems may be overwhelmed by increased demand. The entire population, particularly vulnerable populations, could experience health challenges and economic losses due to the reduced availability of water.
South Ogden	The municipal water supply could be strained, impacting households, businesses, and critical facilities like hospitals and schools. Reduced water availability can also compromise firefighting capabilities. The elderly population is particularly vulnerable during drought due to potential dehydration and heat-related illnesses. Water restrictions can limit their ability to maintain personal hygiene and hydration, especially for those with limited mobility and those living alone.

Plan Participant Name	Impacts
Uintah	Homes and residences could experience water shortages. Ditch water and river flow could be reduced or disrupted due to drought. Residents, particularly vulnerable populations, could be impacted by water could experience negative health impacts.
Washington Terrace	Water supply could be reduced or disrupted by drought. Water delivery systems may be overwhelmed due to increased strain on the system during drought conditions. The population, including vulnerable populations like seniors, could experience negative health impacts.
West Haven	Water availability could be reduced. Water systems could be overwhelmed by increased strain during drought conditions. The entire population, including vulnerable populations, could experience negative health impacts due to the reduced availability of water.
Pineview Water System	The secondary water Pineview Water Systems traditionally delivers could be disrupted or delayed by drought. Strains on the system during drought conditions due to overuse could impact Pineview Water System's ability to provide secondary water.
Roy Water Conservancy District	Services may be impacted due to lack of water to deliver. Lack of secondary water may impact customer's lawns, gardens, and agriculture.
Taylor West Weber Water District	Services may be impacted due to lack of water to deliver.
Weber Morgan Health Department	Decreased availability and quality of water, increased incidence of illness and disease (e.g., Valley Fever), adverse mental health outcomes as people's livelihoods are threatened, and an overall increase in mortality rates.
Weber School District	Drought could impact the ability to maintain fields and grounds. School activities on fields and grounds may be disrupted if drought is severe enough.
West Warren-Warren Water Improvement District	Water services could be disrupted due to lack of water supply. Access to drinking water could be impaired for the communities that West Warren-Warren Water Improvement District services. Public health impacts, particularly on vulnerable populations, could affect the service area.
Weber Fire District	Drought can increase the need for the district's service due to increased susceptibility to fire across the district's service area. The ability of the district to effectively respond could be negatively impacted by a lack of

Plan Participant Name	Impacts
	available water supply. Delays or disruption of district services due to drought could lead to additional loss of life or property.

Changes in Development

Weber County's drought conditions are improving, which could lead to increased development.[90] The 2022 Western Weber County General Plan (GP) incorporates the 2003 West Central Weber County GP and shows an increase of 30% in dwelling units over the past two decades. There are over 200 vacant residential lots, some ready to be built on and others in various stages of development. Most residential land use consists of large lots of a half-acre or more. West Central Weber County is proposed to have medium to large residential lots, while those in the Uintah Highlands have been developed at 15,000 square feet. The current cluster subdivision code was adopted in 2017, with only two subdivisions approved under this pattern. Mixed-use commercial land areas are designated to provide village centers, but as of 2023, no mixed-use commercial entities were in the planning area. It is unlikely that the mixed-use areas will be on the same scale as Ogden's downtown area. Each mixed-use area should have at least one community "main street," providing retail sales, services, eateries, and related activities.

In a community where drought risk is improving, several positive development trends may emerge:

1. **Agricultural Expansion:** With reduced drought risk, agricultural activities may expand as farmers feel more confident sustaining crops and livestock. This could lead to increased productivity and economic growth in the agricultural sector.[91]
2. **Population Growth:** Improved drought conditions may attract more people to the community, especially if the area is known for its previously scarce water resources. This population growth may lead to increased urbanization and demand for housing and infrastructure.
3. **Economic Investment:** Businesses and industries may be more inclined to invest in the community, knowing that water resources are becoming more reliable. This could lead to job creation, economic development, and improved overall prosperity.[92]

[90] The Daily Universe, "Utah's Snowpack Surge Impacts Drought, Lake Levels." https://universe.byu.edu/2024/03/18/utahs-snowpack-surge-impacts-draught-lake-levels/#:~:text=The%20U.S.%20drought%20monitor%20shows,land%20experiencing%20abnormally%20dry%20conditions.

[91] Scholarly Community Encyclopedia, "Agricultural Expansion Drivers and Constraints." https://encyclopedia.pub/entry/9219#:~:text=Agricultural%20expansion%20refers%20to%20the,by%20smallholders%20or%20largescale%20farmers.

[92] US Water Alliance, "Bridging the Gap: The Power of Investment in Water." https://uswateralliance.org/resources/bridging-the-gap-the-power-of-investment-in-water/#:~:text=The%20Economic%20Benefits%20of%20Investing.growth%2C%20and%20other%20economic%20indicators.

4. **Environmental Restoration:** With reduced drought risk, there may be opportunities for environmental restoration, such as reforestation projects or efforts to rehabilitate ecosystems previously impacted by water scarcity.[93]
5. **Infrastructure Development:** The community may invest in water storage and management infrastructure to further mitigate the effects of future droughts and support the growing population and economic activities. Climate change significantly impacts community development, leading to a shift in planning and infrastructure. As extreme weather events become more frequent, communities are reevaluating and adapting their development strategies to mitigate the effects of climate change. This includes incorporating sustainable and resilient design principles into infrastructure developments, such as stormwater management systems, green spaces, and energy-efficient buildings.

Western Weber County is experiencing significant population growth and infrastructure growth. With a 30% increase in dwelling units over the past two decades and over 200 vacant residential lots, the community is poised for further development. The proposed residential lots and mixed-use commercial areas reflect the intention to accommodate this growth while balancing residential and commercial spaces. As the community continues to evolve, careful planning and consideration of infrastructure needs will be essential to support the increasing population and maintain the quality of life of its residents.

Table 42: Drought Changes in Development Summary

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Weber County	Stayed the Same.	Since the last plan update, there have been no changes in development that impact risk from drought.
Farr West	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from drought.
Harrisville	Stayed the Same	The city is still at risk of drought. Water must be managed constantly, even in years when snowpack goals have been met. The city had to pass an emergency declaration for drought, limiting irrigation for businesses and residences to reduce water waste. The city has adopted resolutions recommending water-wise trees and shrubbery.

[93] United States Environmental Protection Agency, "Water Reuse to Support Environmental Restoration Resources." https://www.epa.gov/waterreuse/water-reuse-support-environmental-restoration-resources

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Hooper	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from drought.
Huntsville	Stayed the Same	The city uses the same water guidelines as before.
Marriot-Slaterville	Increased	The city has experienced less precipitation and an increase in population.
Ogden	Increased	The population has increased, which has increased the demand on the water system.
Pleasant View	Stayed the Same	Development that has occurred is not anticipated to have impacted this hazard type.
Riverdale	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from drought.
Roy	Increased	Available water supplies have remained the same; development has increased water demand.
South Ogden	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from drought.
Uintah	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from drought.
Washington Terrace	Decreased	The city encourages water conservation through rate structures, Advanced Metering Infrastructure (smart meters), and regular reviews of the efficiency of the water supply system.
West Haven	Stayed the Same	Since the last plan update, vulnerability has stayed the same due to no changes in development.
Pineview Water Systems	Increased	Population increase has increased the number of users of the water system.

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Roy Water Conservancy District	Stayed the Same	Since the last plan update, the vulnerability is the same, as there are cycles of drought and normal conditions.
Taylor West Weber Water District	Stayed the Same	Since the last plan update, vulnerability has stayed the same due to no changes in development.
Weber Morgan Health Department	Stayed the Same	Since the last plan update, vulnerability has stayed the same due to no changes in development.
Weber School District	Increased	In 2021–2022, the drought conditions affected the ability to maintain school grounds.
West Warren-Warren WID	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from drought.
Weber Fire District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from drought.

Secondary Hazards

Drought can have a wide range of secondary impacts on various aspects of our lives and the environment. The secondary impacts of drought and climate change on a community can be quite significant. Water shortages can lead to a decline in agricultural productivity and affecting the local economy and food supply. Infrastructure like roads and buildings may be compromised because of changing weather patterns, leading to increased maintenance costs. In addition, drought can impact public health, as water scarcity can increase the risk of waterborne diseases. Businesses may suffer, leading to job losses and economic hardship. Overall, the secondary impacts of drought and climate change can have far-reaching consequences for a community's well-being and stability.

Earthquake

An earthquake shakes the earth's surface with energy waves emitted by slowly moving tectonic plates overcoming friction with one another under the earth's surface.[94] Earthquakes can range in size from those so weak that they cannot be felt to those violent enough to propel objects and people into the air and cause significant damage. The seismicity, or seismic activity, of an area refers to the frequency, type, and size of earthquakes experienced over time. Earthquakes are measured using seismometers. The moment magnitude (Mw) is the most common scale on which earthquakes larger than approximately 5 are reported for the entire globe. Figure 56 provides information on the total number and magnitude of earthquakes in or near Weber County over the past three years as of May 30, 2024, along with a graph illustrating the increasing seismic activity in the region.

Number of recent quakes in or near Weber, Utah, USA, by magnitude

	TOTAL NUMBER	<M2	M2+	M3+	M4+	M5+	M6+	M7+
Past 24 hours	1 quake	1	-	-	-	-	-	-
Past 7 days	1 quake	1	-	-	-	-	-	-
Past 30 days	13 quakes	1	5	3	1	-	-	-
Past 365 days	78 quakes	40	15	5	1	-	-	-
Past 3 years	329 quakes	175	60	10	1	-	-	-

During June 2024, Weber has had 14 quakes of magnitudes up to 3.2:

- 2 quakes above magnitude 3
- 3 quakes between magnitude 2 and 3
- 9 quakes below magnitude 2 that people normally don't feel.

Figure 56: Earthquakes in or near Weber County, 2021–2023, as of May 30, 2024[95]

Since 1847, Utah has experienced 17 earthquakes with a magnitude of 5.5 or greater. Most of these earthquakes have occurred along the Wasatch Front, one of the longest (240 miles long) and most active faults of its type in the world. The fault runs north-south through Weber County. Utah is intersected by several active faults, but the Wasatch Front poses the most significant hazard due to its proximity to major cities.

The Wasatch Fault, which extends along the Wasatch Front, is a significant geological feature in north-central Utah. It delineates the boundary between the Great Basin's eastern edge and the Rocky Mountains' western front. The fault has been divided into 10 segments, with the central five segments being the most active. Each segment can move independently and be a separate source of large earthquakes. Each segment can produce strong earthquakes if it were to rupture individually. The heightened seismic activity

[94] FEMA, "National Risk Index, Earthquake." https://hazards.fema.gov/nri/earthquake
[95] Volcano Discovery, "Latest Quakes in or Near Weber, Utah, USA-Lists, Stats, and Map." https://www.volcanodiscovery.com/earthquakes/usa/utah/weber.html

in these segments poses a considerable risk to several major Utah cities, including Brigham City, Ogden, Salt Lake City, Provo, and Nephi.[96]

Figure 57 presents data regarding the seismic magnitude of earthquakes and the corresponding amount of energy released, encompassing both natural and human-induced occurrences.

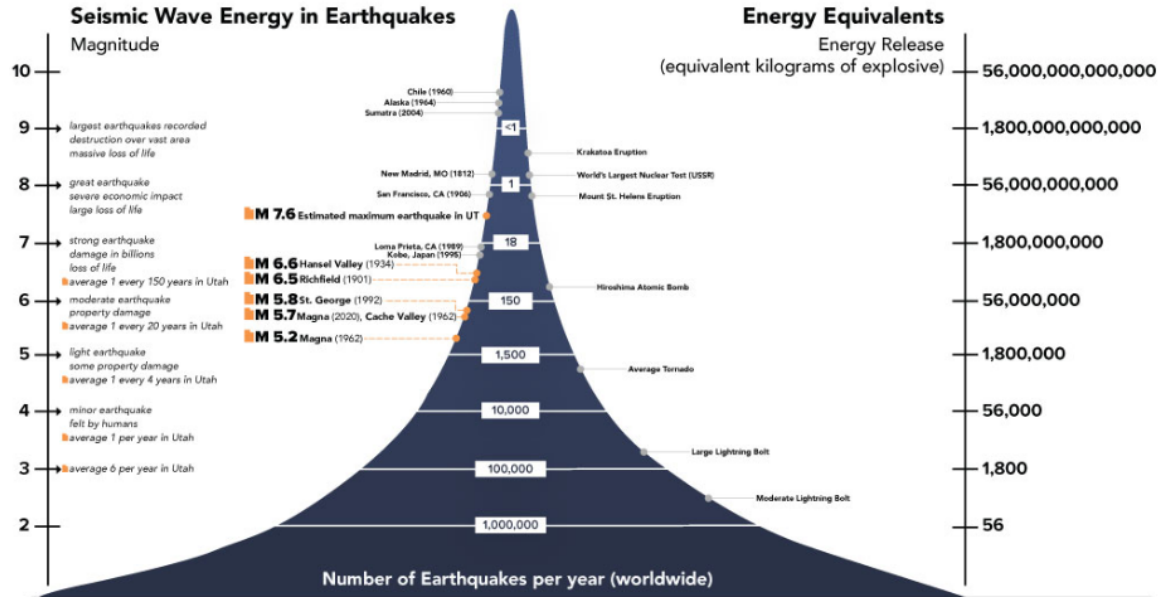


Figure 57: Magnitude of Historical Earthquakes Compared with Other Natural and Human-Made Events[97]

Location

Weber County is prone to seismic activity due to its proximity to the Wasatch Fault. The Wasatch Fault is a significant active fault zone in the region and poses a significant earthquake hazard to the surrounding areas, including Weber County. The Weber section of the Wasatch fault can produce large-magnitude earthquakes that could have a significant impact on the local communities and infrastructure. One of the most well-known was the "Nephi–Ogden" earthquake in 1934. It had a magnitude (M) of 6.6, and it caused a lot of damage to buildings and roads in the area.

Utah also is part of the Intermountain Seismic Belt, which extends from northwestern Arizona to western Montana. This area is known for its seismic activity and is susceptible to earthquakes because of the complex tectonic forces at play in the region. Any part of the county can be affected by earthquakes. Specifically, faults run through Washington Terrace, Ogden, Harrisville, North Ogden, Pleasant View, and Farr West (see Figure 58). Ground shaking will be felt throughout the county.

[96] Temblor, "Wasatch Corridor in Utah Prone to Big Quakes and Shakes." https://temblor.net/earthquake-insights/understanding-utah-seismic-hazard-14847/
[97] Earthquakes.Utah.Gov, "Earthquakes in Utah." https://earthquakes.utah.gov/#recent

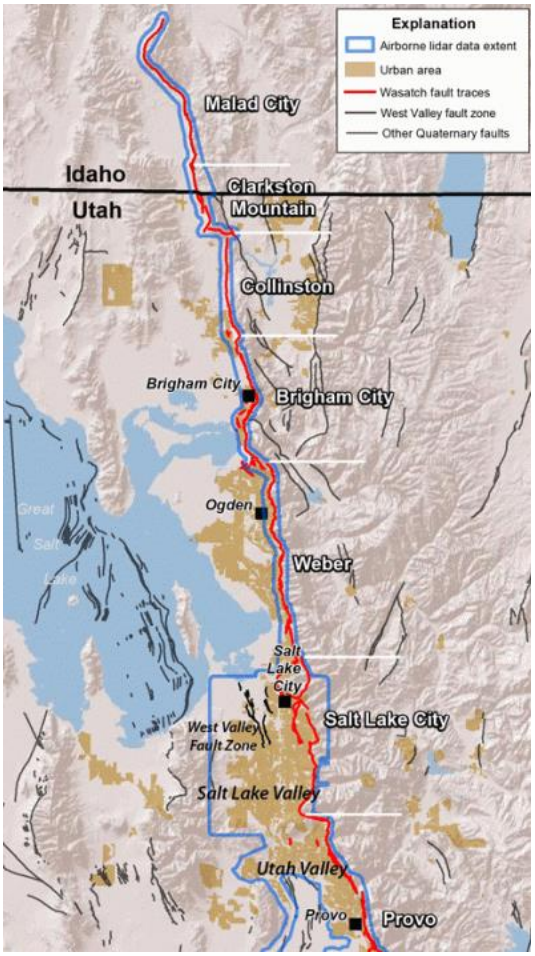


Figure 58: Urban Areas Along the Wasatch Fault[98]

The magnitude or extent of an earthquake could have various impacts on the planning area. Depending on the severity, an earthquake could cause minor to significant damage to the area's infrastructure, buildings, and homes. It could also disrupt utilities, such as water and electricity, and cause landslides or other secondary hazards. A strong earthquake could lead to injuries, fatalities, and economic repercussions in populated areas.

A quaternary fault is one that has moved in the last 1.6 million years. Figure 59 through Figure 63 show various structures near quaternary faults. Figure 64 through Figure 68 show the locations and magnitudes of earthquakes between 1850 and 2016.

[98] Temblor, "Wasatch Corridor in Utah Prone to Big Quakes and Shakes." https://temblor.net/earthquake-insights/understanding-utah-seismic-hazard-14847/

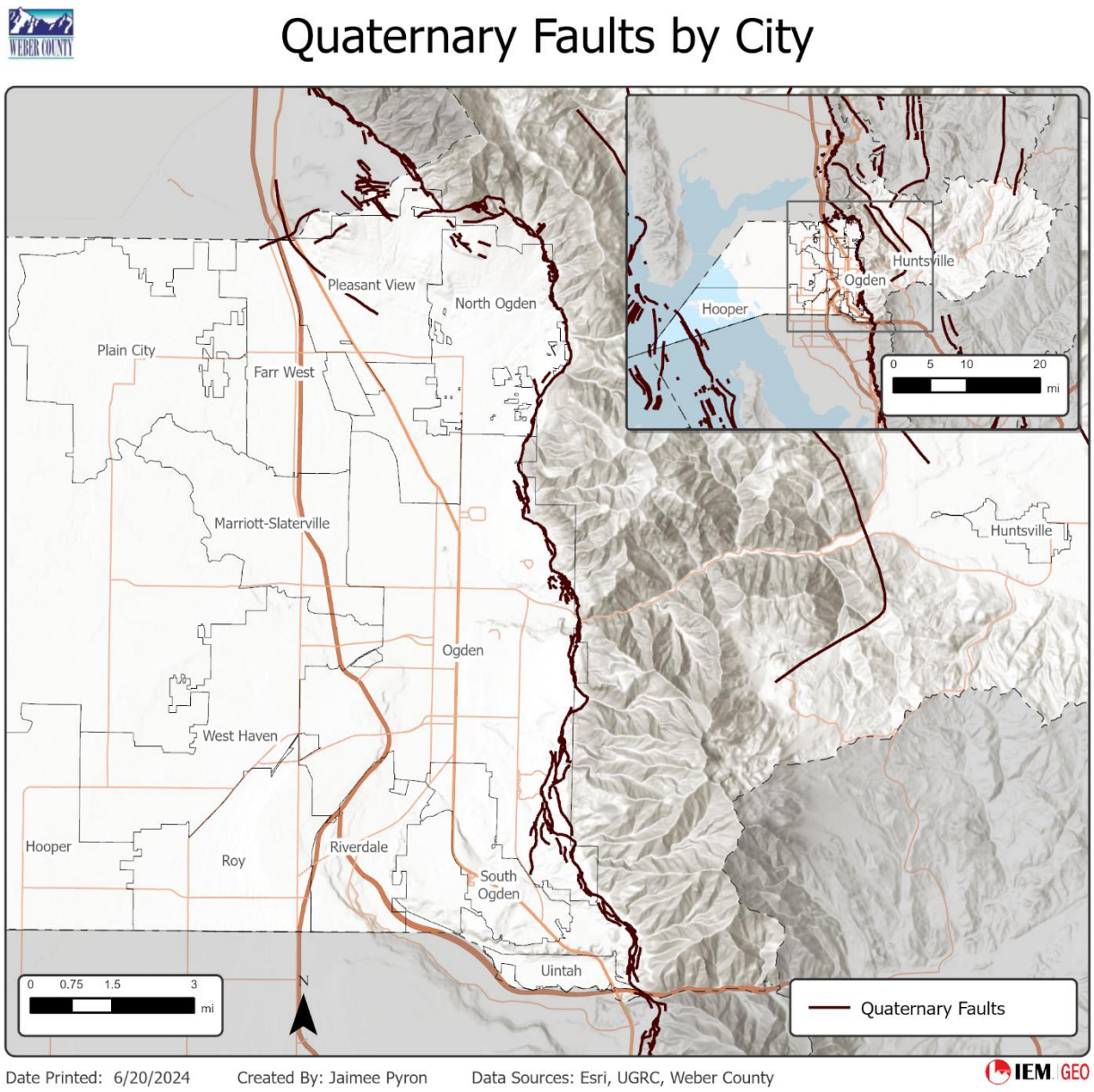


Figure 59: Quaternary Faults Affecting Cities

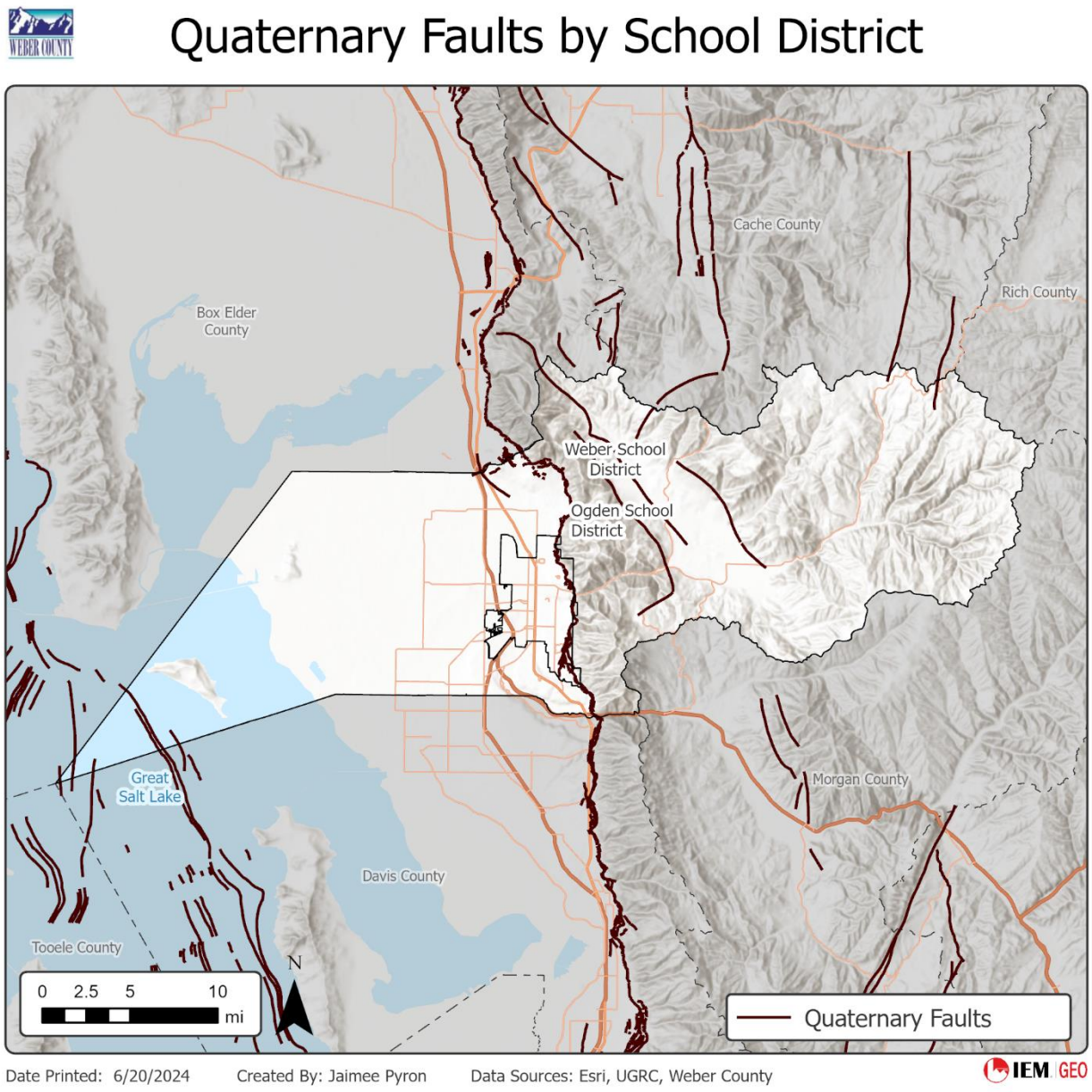


Figure 60: Quaternary Faults Affecting School Districts

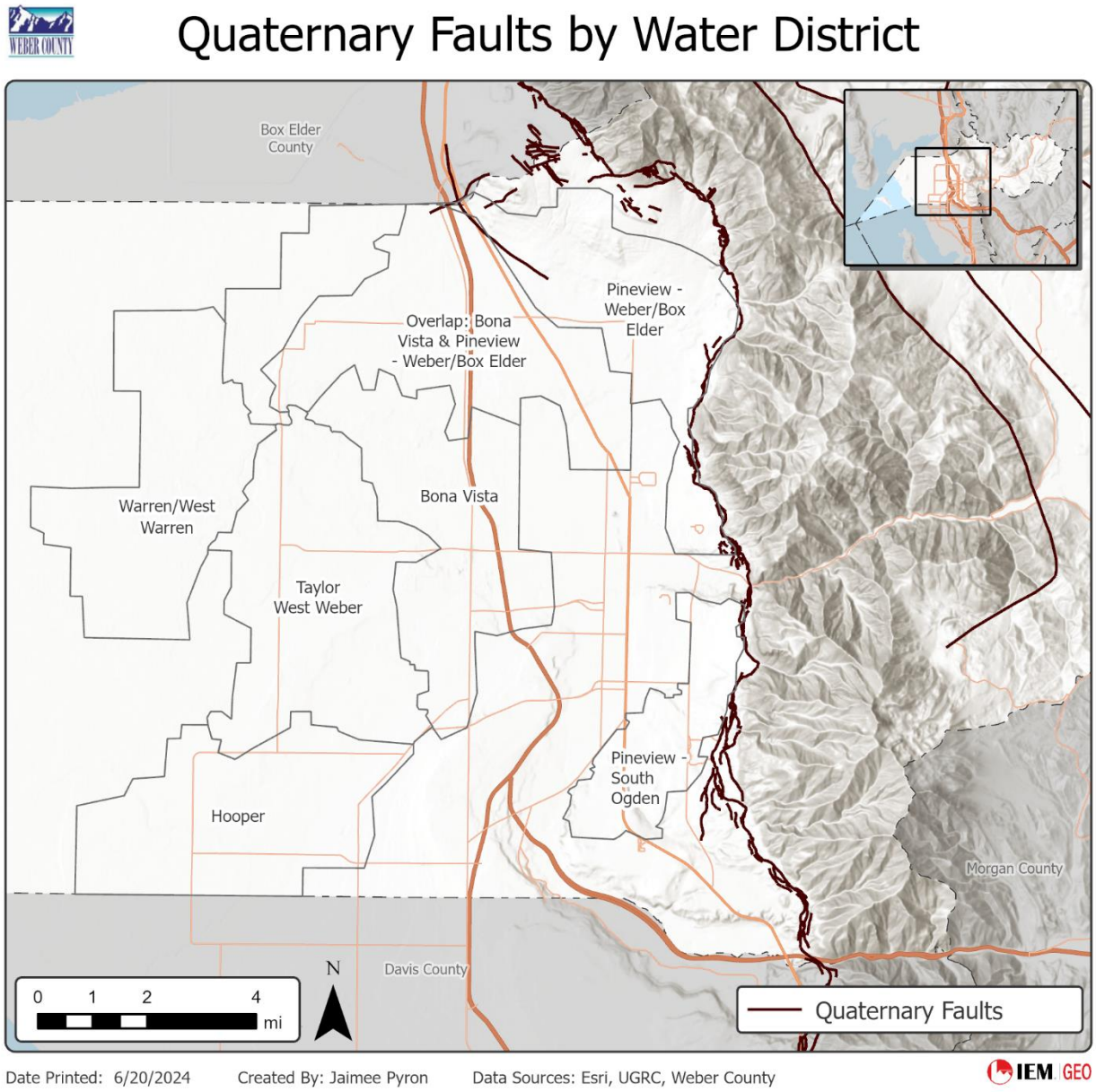


Figure 61: Quaternary Faults Affecting Water Districts

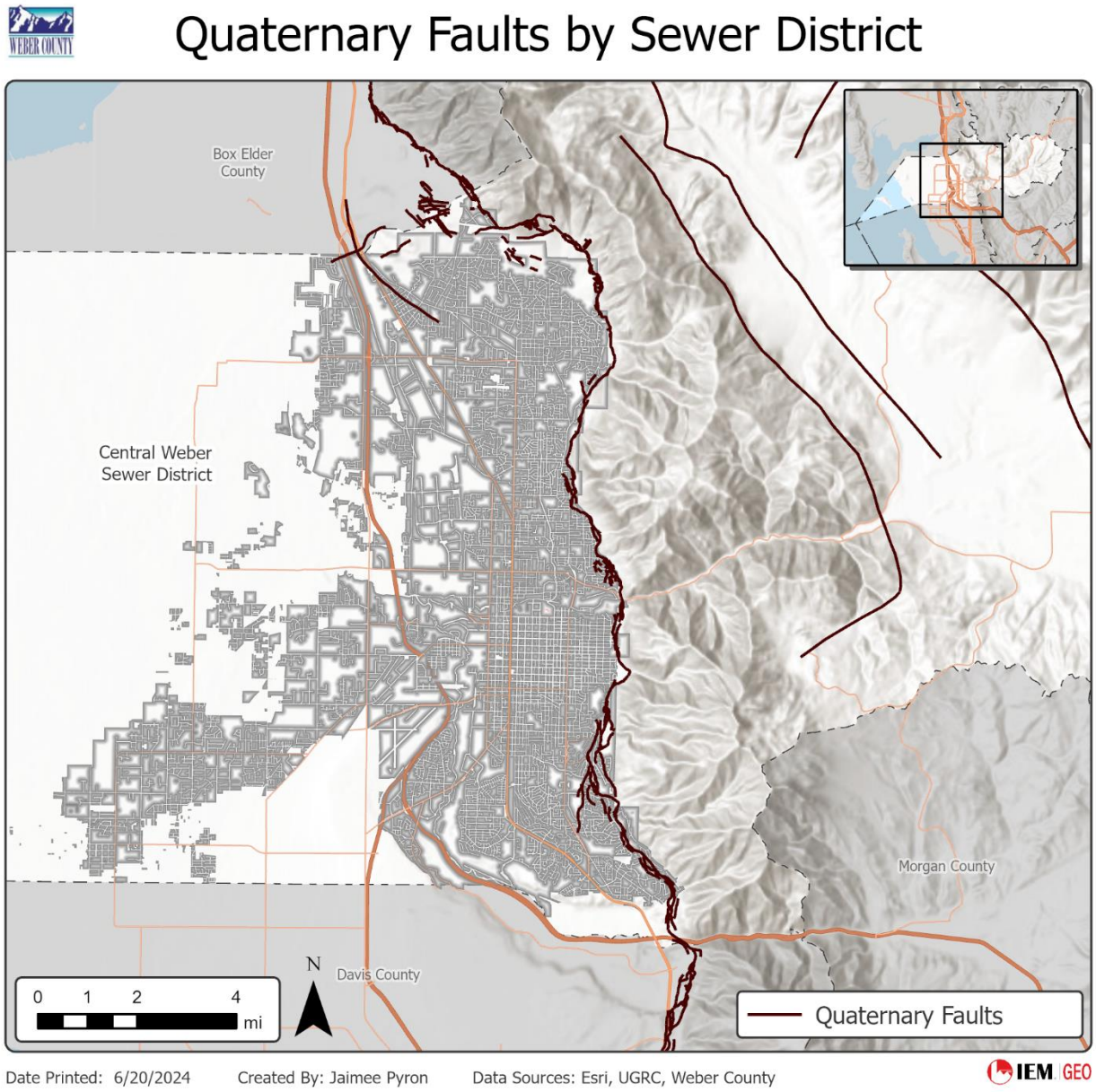


Figure 62: Quaternary Faults Affecting Sewer District

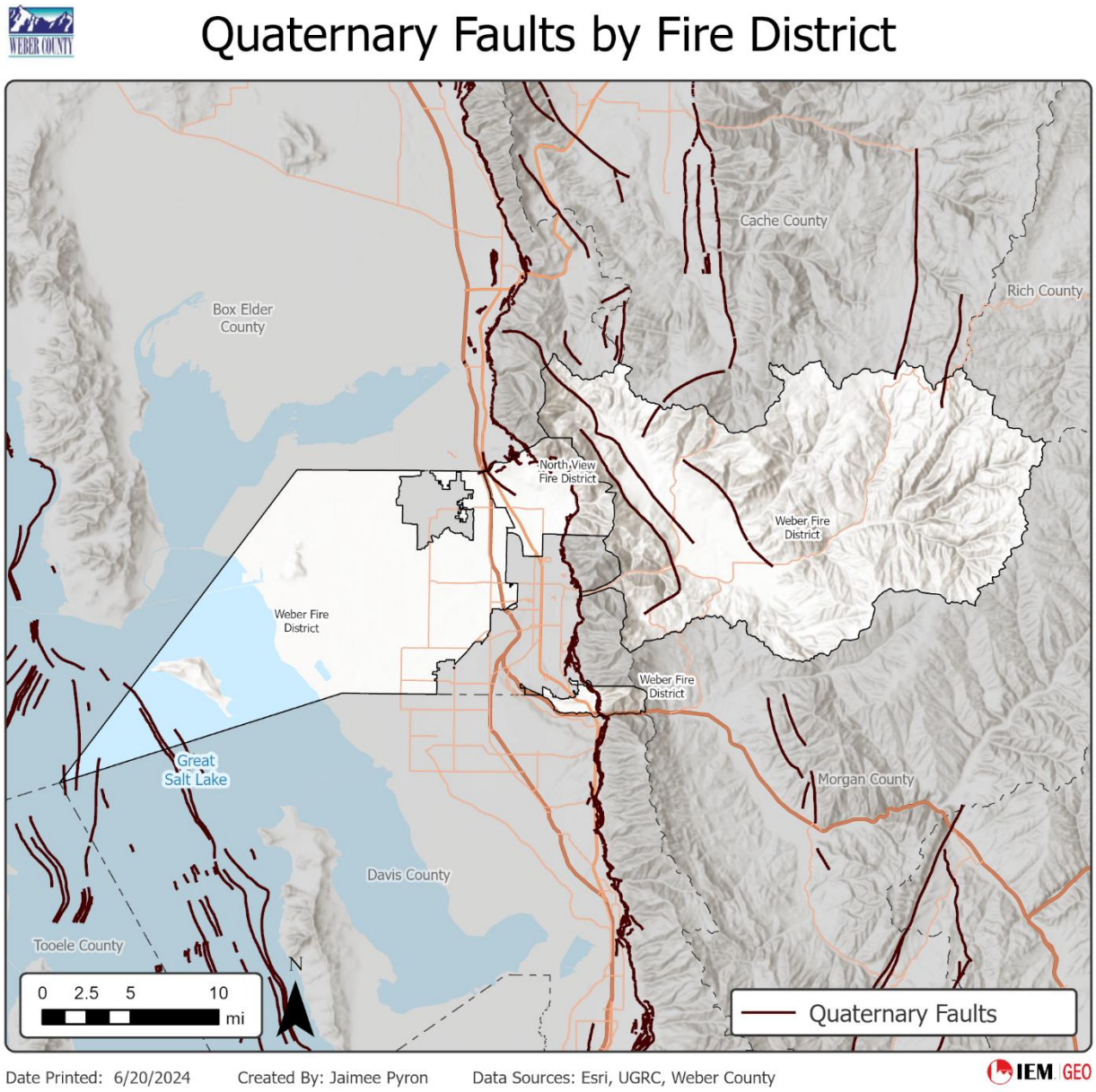


Figure 63: Quaternary Faults Affecting Fire Districts

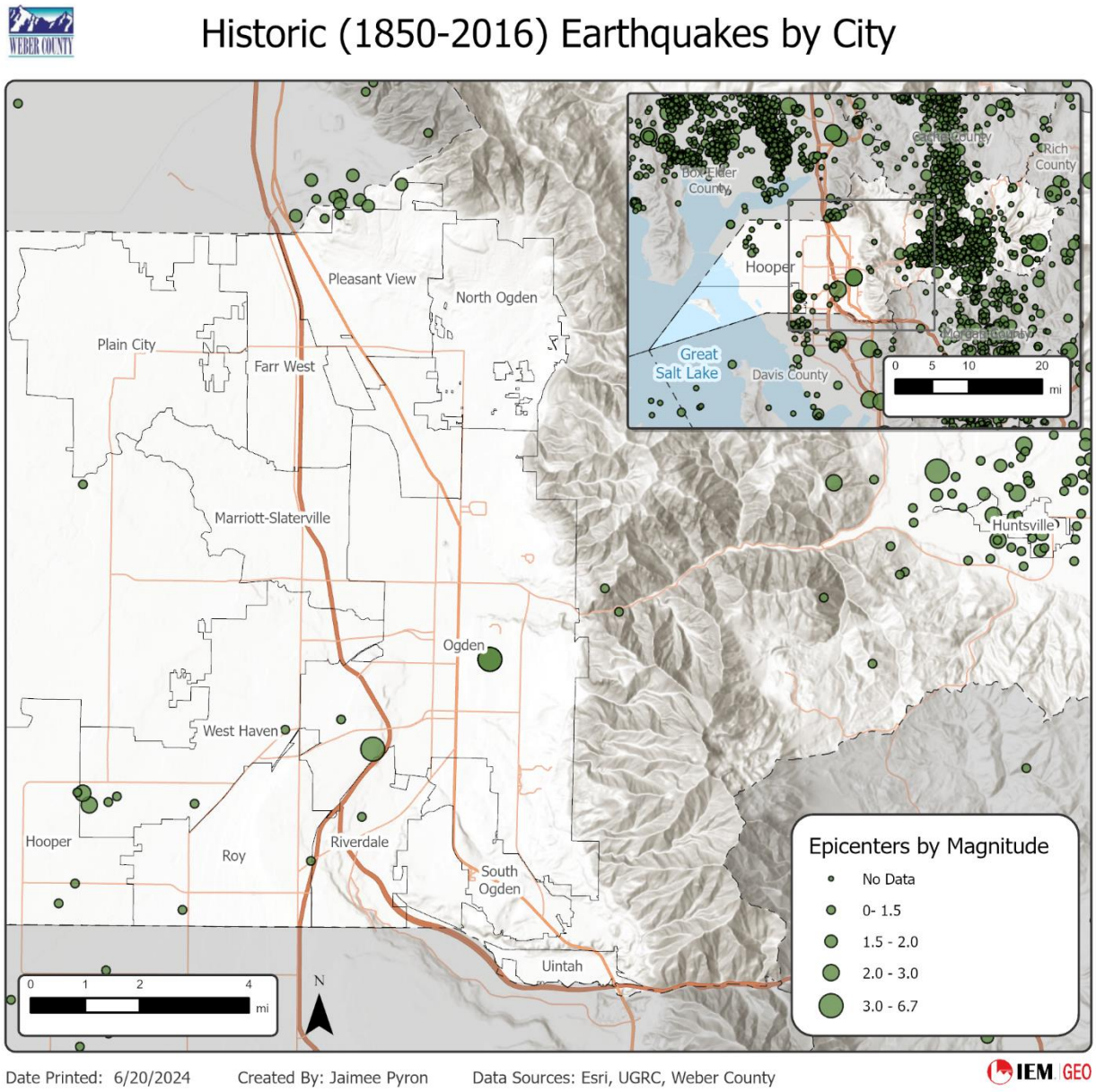


Figure 64: Earthquakes in Cities, 1850–2016

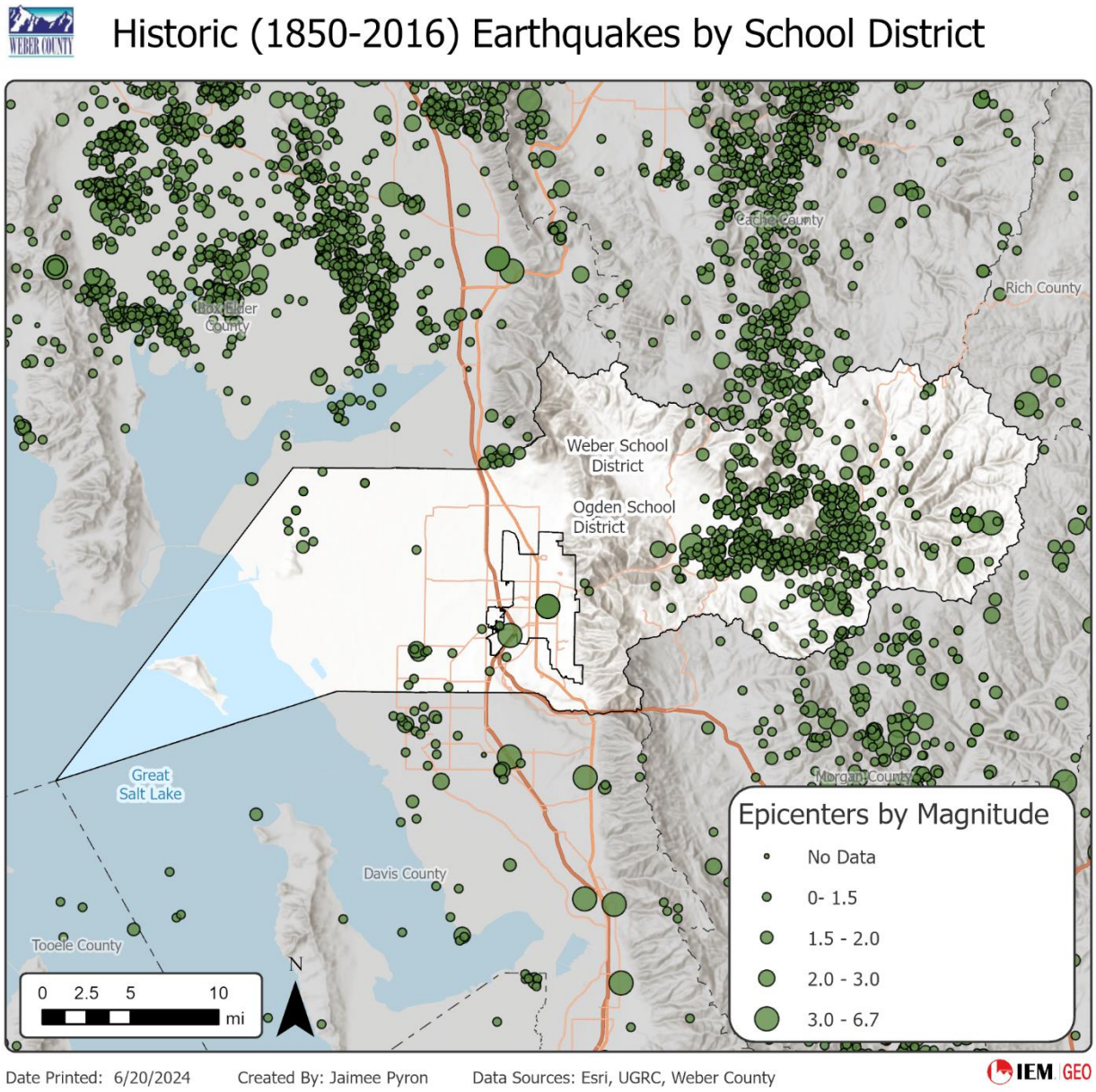


Figure 65: Earthquakes in School Districts, 1850–2016

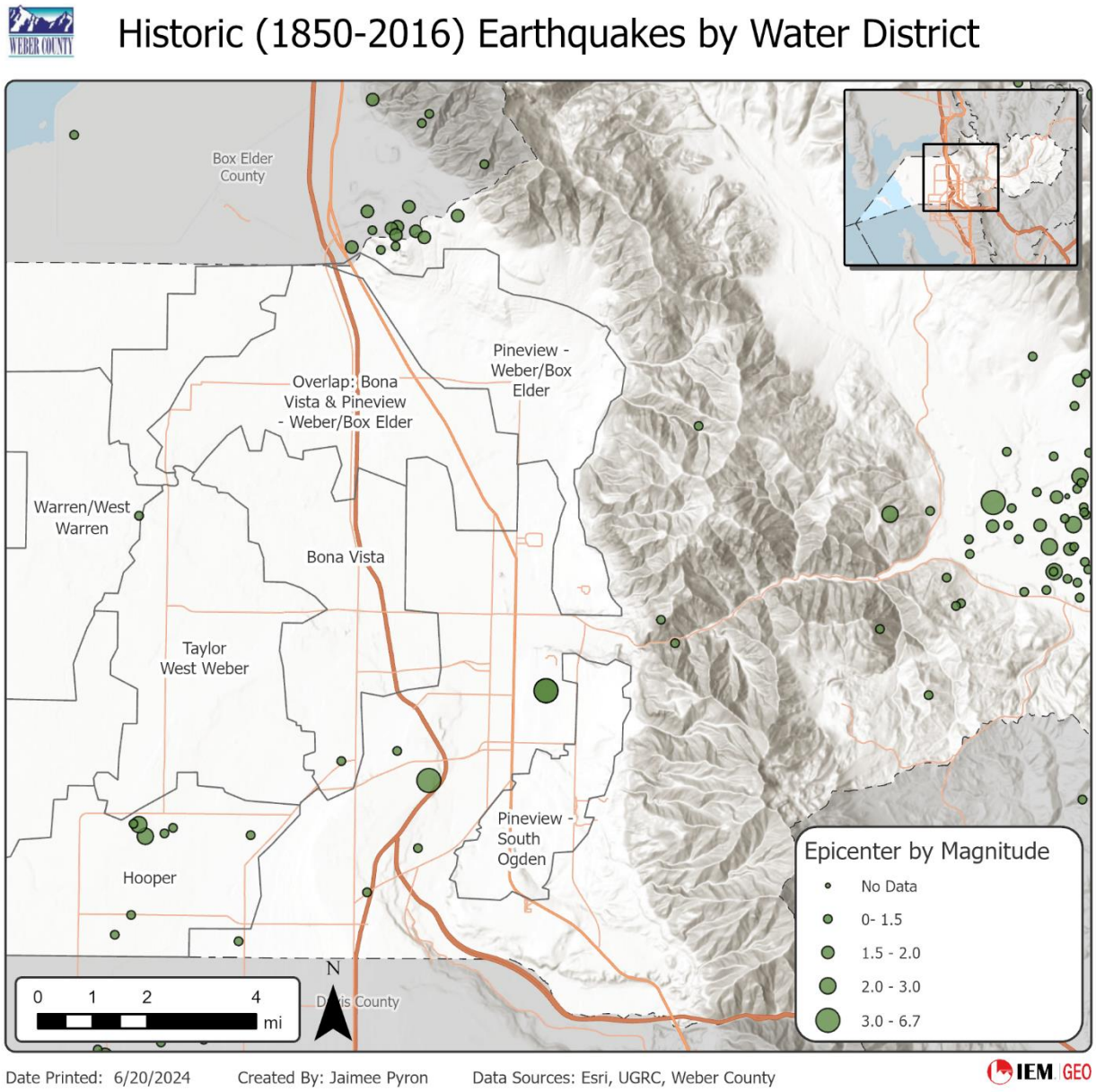


Figure 66: Earthquakes in Water Districts, 1850–2016

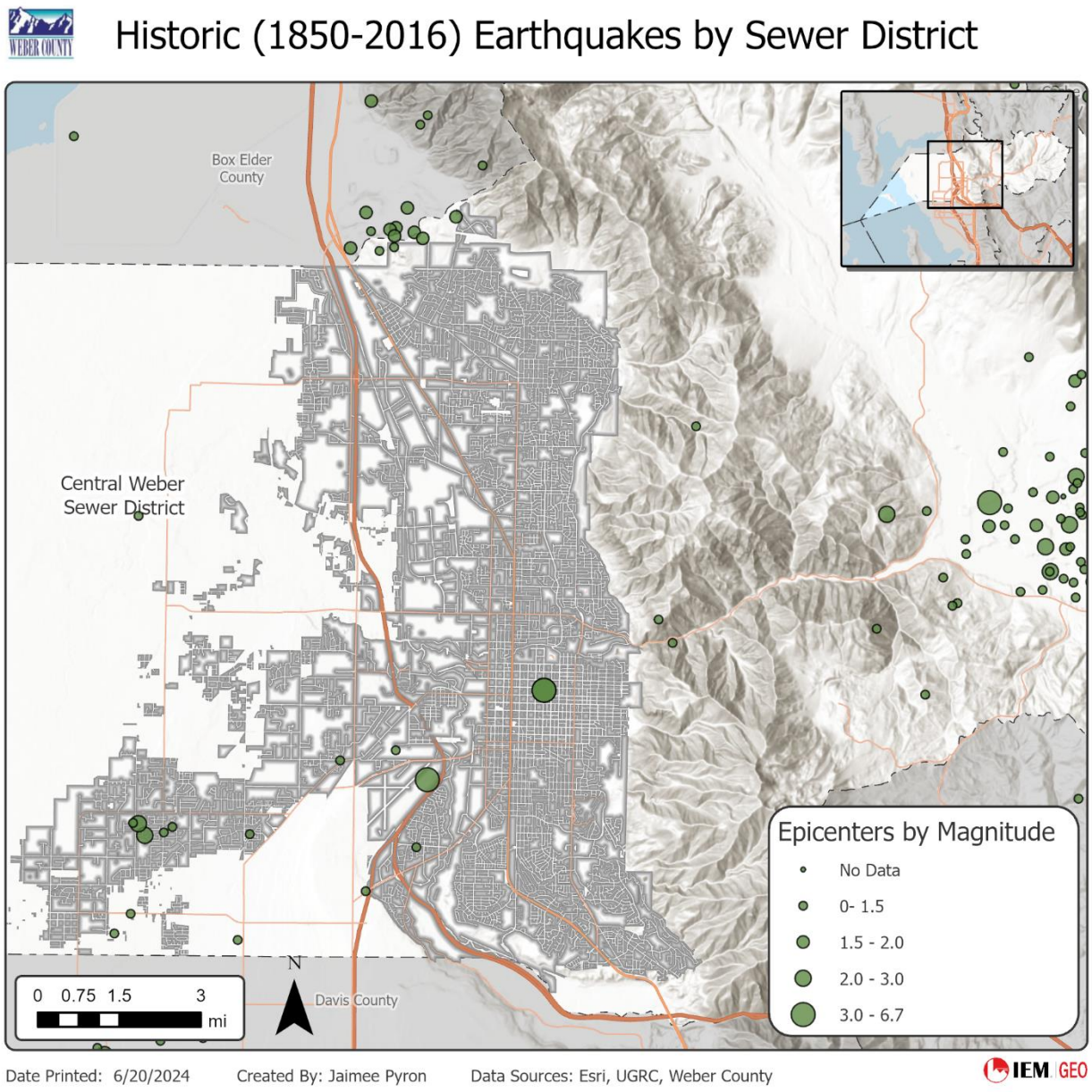


Figure 67: Earthquakes in Sewer Districts, 1850–2016

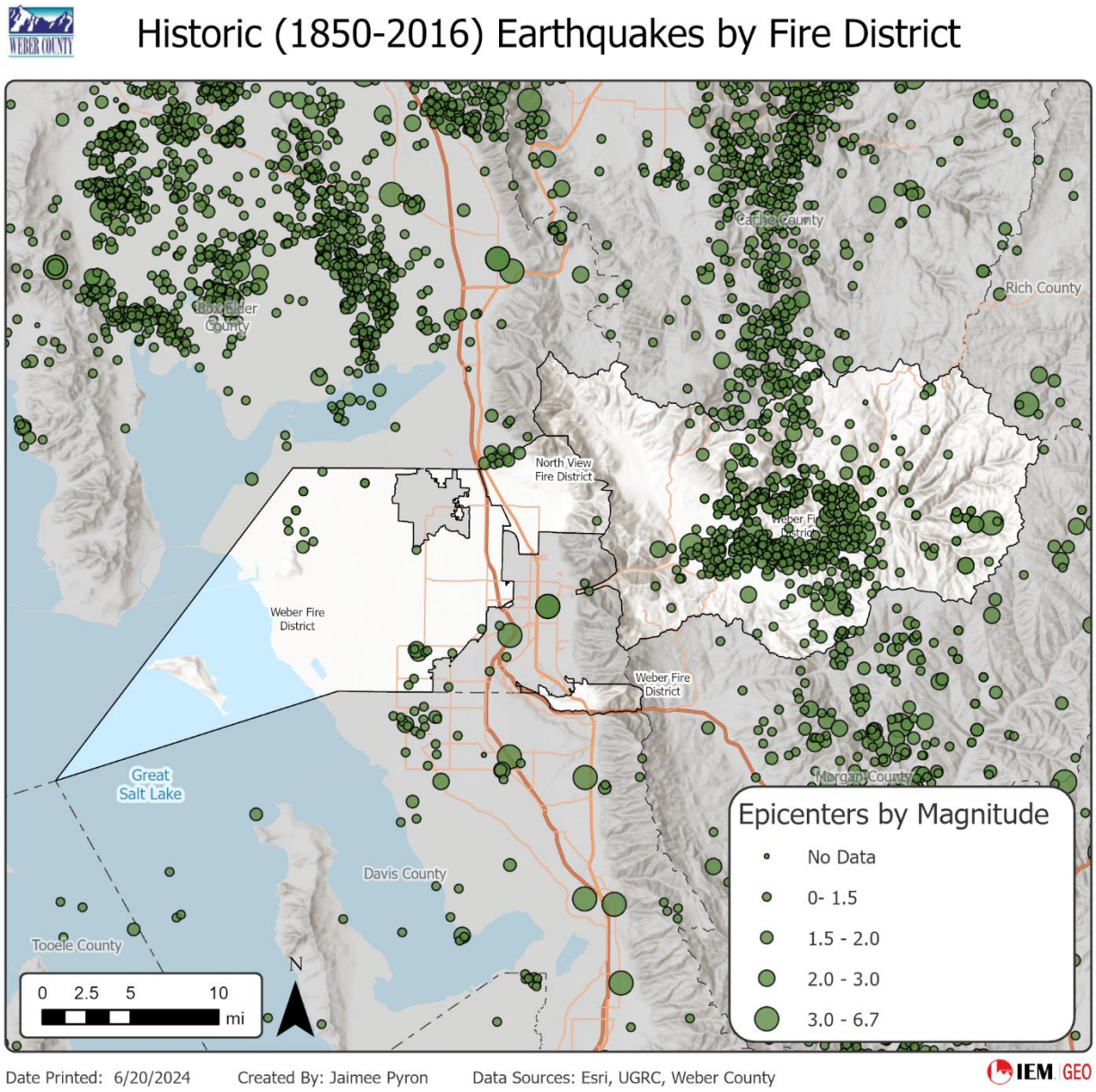


Figure 68: Earthquakes in Fire Districts, 1850–2016

Figure 69 shows how much the ground in Weber County might move during a 7.2M earthquake. Most of the planning area would experience "severe" movement.

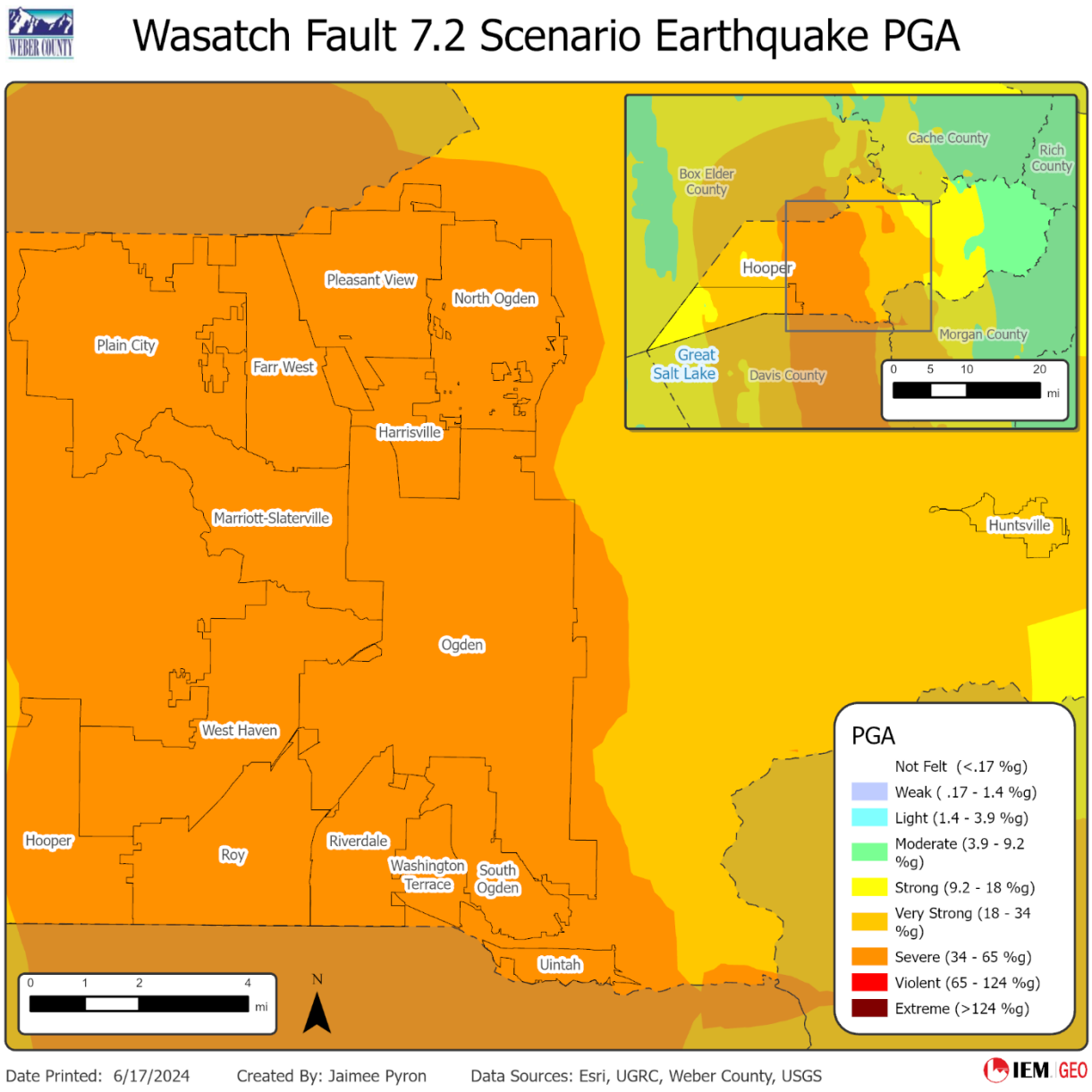


Figure 69: Peak Ground Acceleration for Weber Section of Wasatch Fault, 7.2M Scenario

Magnitude/Extent

Earthquakes are classified based on their magnitude, which measures the energy released during an earthquake. These classifications help assess the earthquake's potential impact on structures and populations. The most widely used scale for magnitude is the Richter scale or the more modern Modified Mercalli Intensity Chart. The extent of the earthquake would include damage from all participating jurisdictions due to the large-scale impacts. The figure below describes the levels of shaking possible from earthquakes.

Magnitude	Category	Effects	Effects Per Year
< 3.0	Micro	Usually not felt, but can be recorded by seismograph	+100,000
3.0 - 3.9	Minor	Often felt, but causes no damage	12,000 - 100,000
4.0 - 4.9	Light	Felt by all, minor breakage of objects	2,000 - 12,000
5.0 - 5.9	Moderate	Some damage to weak structures	200 - 2,000
6.0 - 6.9	Strong	Moderate damage in populated areas	20 - 200
7.0 - 7.9	Major	Serious damage over large areas with loss of life expected	3 - 20
> 7.9	Great	Severe destruction and loss of life over large areas	<3

Figure 70: Earthquake Modified Mercalli Intensity Chart and Richter Scale

Earthquake could affect all the jurisdictions in the county planning area.

Previous Occurrences

Based on the FEMA Disaster Declarations Database, Weber County has received no designation for earthquake disaster declarations since the last plan update.

On August 30, 2023, a 3.7M earthquake shook the Ogden area in Weber County. The earthquake occurred at 6:11 p.m. and was 7.3 miles deep.[99] On June 17–30, 2021, an earthquake swarm, which included 34 earthquakes of 0.4M to 2.0M, was recorded near Huntsville.[100]

The largest earthquake in the past 10 years—5.7M and 7 miles deep—occurred on March 18, 2020, 3.1 miles from Magna. Affected areas included Harrisville, Hooper, Ogden, Pleasant View, Riverdale, Roy, South Ogden, and Washington Terrace.

A powerful 7.0M earthquake struck 55 miles from Ogden and affected Harrisville, Hooper, Pleasant View, Riverdale, Roy, South Ogden, and Washington Terrace. It occurred at 8:41 p.m. on Tuesday, October 5, 1909. It had a very shallow depth: 0 km (0 mi). Although no fatalities are known to have occurred, buildings and infrastructure were damaged near the epicenter.[101]

More recent earthquakes had the following characteristics:

- **November 27, 2000:**
  - Magnitude: 5.6
  - Epicenter: Near Dugway Proving Ground, Tooele County (outside Weber County)
  - Extent: Felt throughout Weber County and surrounding areas
  - Damage: Some reports of minor structural damage in Weber County
  - Affected Jurisdictions: Weber County, Tooele County
  - Population Affected: Local residents
- **September 1, 2003:**
  - Magnitude: 3.7
  - Epicenter: Near Huntsville, Weber County
  - Extent: Felt locally in Weber County
  - Damage: No significant damage reported
  - Affected Jurisdictions: Weber County
  - Population Affected: Local residents
- **February 14, 2011:**
  - Magnitude: 4.1
  - Epicenter: Near Ogden, Weber County

[99] Volcano Discovery, "Mag. 3.7 Earthquake – 20 MI Northeast of Ogden, Weber County, Utah, United States, on Wednesday, Aug 30, 2023, at 06:11 p.m. (Denver Time) – 43 Weeks Ago." https://www.volcanodiscovery.com/earthquakes/quake-info/7849149/quake-felt-Aug-31-2023-Near-Ogden-Utah-USA.html
[100] The University of Utah, "U of U Seismograph Stations." https://quake.utah.edu/2021
[101] The University of Utah, "U of U Seismograph Stations." https://quake.utah.edu/tag/historical-ut-earthquakes

- Extent: Felt in Weber County and surrounding areas
- Damage: No significant damage reported
- Affected Jurisdictions: Weber County
- Population Affected: Local residents

- **March 18, 2011:**
  - Magnitude: 4.1
  - Epicenter: Near Huntsville, Weber County
  - Extent: Felt in Weber County and surrounding areas
  - Damage: No significant damage reported
  - Affected Jurisdictions: Weber County
  - Population Affected: Local residents
- **September 10, 2011:**
  - Magnitude: 4.0
  - Epicenter: Near Ogden, Weber County
  - Extent: Felt in Weber County and surrounding areas
  - Damage: No significant damage reported
  - Affected Jurisdictions: Weber County
  - Population Affected: Local residents
- **March 18, 2020:**
  - Magnitude: 5.7
  - Epicenter: Near Magna, Salt Lake County (close to Weber County)
  - Extent: Felt throughout Weber County and surrounding areas
  - Damage: Some reports of structural damage and fallen debris in Weber County
  - Affected Jurisdictions: Weber County, Salt Lake County, and others
  - Population Affected: Thousands of residents in multiple jurisdictions

Table 43 lists earthquakes of 3M and above since 1900 which were felt in the jurisdictions of Weber County.

Table 43: Earthquakes in or near Weber County since 1900 as of May 30, 2024[102]

Jurisdiction	Greater Than 7M	6M–7M	5M–6M	4M–5M	3M–4M	Annual Average
Harrisville	1	3	11	30	154	542
Hooper	1	2	10	20	163	529
Ogden	1	2	11	22	164	536
Pleasant View	1	3	11	30	154	542
Riverdale	1	2	11	22	163	534
Roy	1	2	11	21	163	530
South Ogden	1	2	11	21	164	536
Washington Terrace	1	2	11	21	161	523

Probability of Future Occurrences

At least 329 earthquakes, ranging in magnitude, have been reported in Weber County between 2021 and 2023 indicating this hazard is **Highly Likely**.

While climate change does not directly cause earthquakes, some evidence suggests it can indirectly influence seismic activity. The melting of glaciers and ice sheets due to rising global temperatures can lead to changes in the Earth's crust, potentially triggering earthquakes in certain regions. In addition, there is ongoing research into possible links between climate change-induced extreme weather events and their ability to trigger geological hazards, such as landslides and tsunamis, which can indirectly affect seismic activity. There is a 57% probability that the Wasatch Front region will experience at least one 6.0M or greater earthquake and a 43% probability of at least one 6.75M or greater earthquake in the next 50 years.[103] Figure 71 and Figure 72 show the probabilities of earthquakes of 6M or larger occurring in or near Weber County over the next 40 years.

A 6.0M earthquake in Weber County, could significantly impact its infrastructure, economy, and people. The consequences could include damage to buildings, roads, and utilities, leading to disruptions in transportation and essential services. This could cause economic losses, such as repair and recovery costs, and impact businesses and employment.

In terms of people, there could be injuries and possible loss of life, particularly if buildings are not constructed to withstand such seismic events. Displacement of residents, temporary housing needs, and psychological effects from the trauma of the earthquake also are potential concerns.

[102] All Quakes, "Latest Worldwide." https://allquakes.com/place/7473/earthquakes/harrisville/largest.html
[103] Earthquakes.Utah.GOV, "Earthquakes in Utah." https://earthquakes.utah.gov/#recent

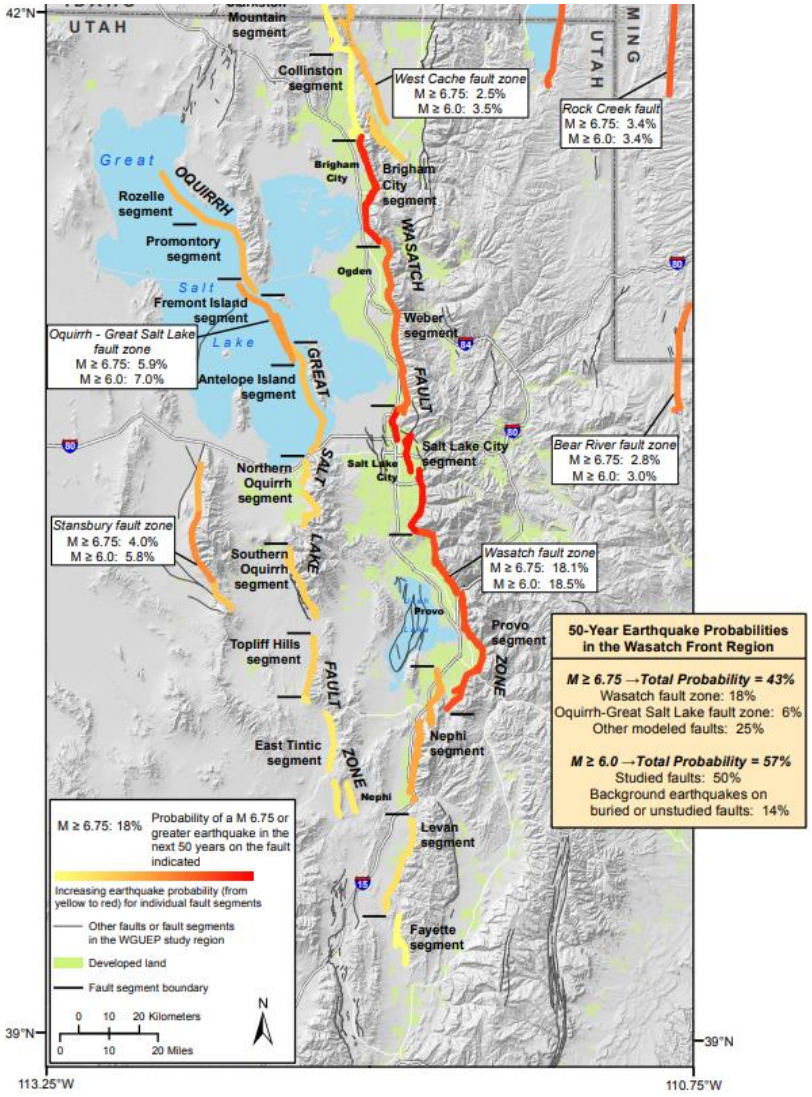


Figure 71: Probability of One or More Earthquakes of 6.0M and 6.75M or Greater in the Next 40 Years, Wasatch Front Region[104]

[104] Temblor, "Earthquake Probabilities for the Wasatch Front Region in Utah, Idaho, and Wyoming." https://ug-spub.nr.utah.gov/publications/misc_pubs/mp-16-3/mp-16-3.pdf

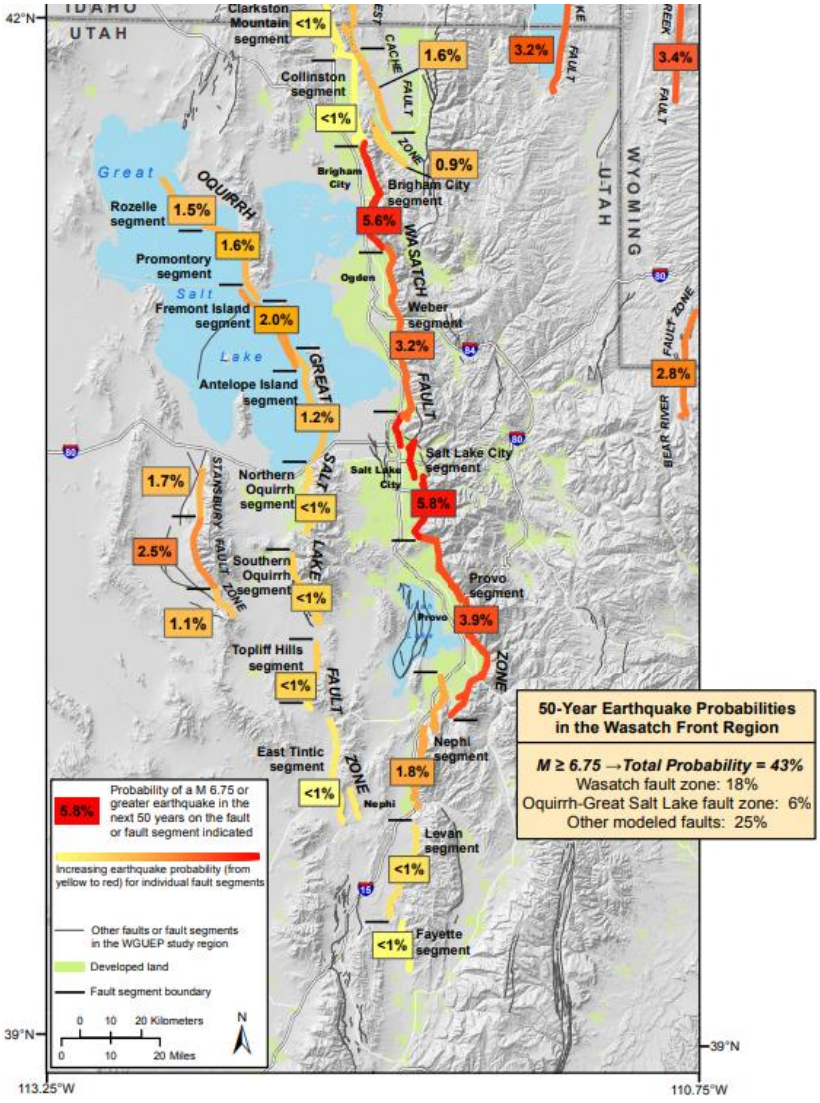


Figure 72: Probability of One or More Earthquakes of 6.75M or Greater in the Next 50 Years[105]

The information in the following sections include statistics on the probability of earthquakes by magnitude and how often they may occur in earthquake-prone areas in Weber County and its jurisdictions. The information is based on data from the past 14 years and earthquake archives since 1900.[106] Jurisdictions not included had no available information.

Weber County has a moderate level of seismic activity. However, it has had at least three quakes above 6M since 1900, which suggests that earthquakes of this size occur infrequently, probably on average every 40 to 45 years. Table 44 shows the expected seismic activity for the County.

[105] Ibid
[106] All Quakes, "Latest Worldwide." https://allquakes.com/place/7473/earthquakes/harrisville/largest.html

Table 44: Expected Seismic Activity in Weber County

Mag. 6 or higher: **0.02 quakes** per year (or 1 quake every 41.7 years)
• Mag. 5 or higher: **0.09 quakes** per year (or 1 quake every 10.8 years)
• Mag. 4 or higher: **0.51 quakes** per year (or 1 quake every 1.9 years)
• Mag. 3 or higher: **4.3 quakes** per year
• Mag. 2 or higher: **14.2 quakes** per year
• Mag. 1 or higher: **59 quakes** per year (or 4.9 quakes per month)

Harrisville has a moderate level of seismic activity. However, it has had at least three quakes above 6M since 1900, which suggests that earthquakes of this size occur infrequently, probably on average approximately every 40 to 45 years. Table 45 shows the expected seismic activity for Harrisville.

Table 45: Expected Seismic Activity in Harrisville

Mag. 6 or higher: **0.02 quakes** per year (or 1 quake every 41.7 years)
• Mag. 5 or higher: **0.09 quakes** per year (or 1 quake every 10.6 years)
• Mag. 4 or higher: **0.6 quakes** per year (or 1 quake every 1.7 years)
• Mag. 3 or higher: **8.6 quakes** per year
• Mag. 2 or higher: **60 quakes** per year (or 5 quakes per month)
• Mag. 1 or higher: **291 quakes** per year (or 24.3 quakes per month)

Hooper has a moderate level of seismic activity. However, since 1900, it has had at least two quakes above 6M, which suggests that earthquakes of this size occur infrequently, probably on average approximately every 60 to 65 years. Table 46 shows the expected seismic activity for Hooper.

Table 46: Expected Seismic Activity in Hooper

Mag. 6 or higher: **0.02 quakes** per year (or 1 quake every 62.5 years)
• Mag. 5 or higher: **0.09 quakes** per year (or 1 quake every 11.6 years)
• Mag. 4 or higher: **0.87 quakes** per year (or 1 quake every 1.2 years)
• Mag. 3 or higher: **8.9 quakes** per year
• Mag. 2 or higher: **59 quakes** per year (or 4.9 quakes per month)
• Mag. 1 or higher: **280 quakes** per year (or 23.3 quakes per month)

Ogden has a moderate level of seismic activity. However, it has had at least two quakes above 6M since 1900, which suggests that earthquakes of this size occur infrequently, probably on average approximately every 60 to 65 years. Table 47 shows the expected seismic activity for Ogden.

Table 47: Expected Seismic Activity in Ogden

Mag. 6 or higher: **0.02 quakes** per year (or 1 quake every 62.5 years)
• Mag. 5 or higher: **0.09 quakes** per year (or 1 quake every 11.8 years)
• Mag. 4 or higher: **0.46 quakes** per year (or 1 quake every 2.2 years)
• Mag. 3 or higher: **8.3 quakes** per year
• Mag. 2 or higher: **59 quakes** per year (or 5 quakes per month)
• Mag. 1 or higher: **285 quakes** per year (or 23.8 quakes per month)

Pleasant View has a moderate level of seismic activity. However, it has had at least three quakes above 6M since 1900, which suggests that earthquakes of this size occur infrequently, probably on average approximately every 40 to 45 years. Table 48 shows the expected seismic activity for Pleasant View.

Table 48: Expected Seismic Activity in Pleasant View

Mag. 6 or higher: **0.02 quakes** per year (or 1 quake every 41.7 years)
• Mag. 5 or higher: **0.09 quakes** per year (or 1 quake every 10.6 years)
• Mag. 4 or higher: **0.6 quakes** per year (or 1 quake every 1.7 years)
• Mag. 3 or higher: **8.6 quakes** per year
• Mag. 2 or higher: **60 quakes** per year (or 5 quakes per month)
• Mag. 1 or higher: **291 quakes** per year (or 24.3 quakes per month)

Riverdale has a moderate level of seismic activity. However, it has had at least two quakes above 6M since 1900, which suggests that earthquakes of this size occur infrequently, probably on average approximately every 60 to 65 years. Table 49 shows the expected seismic activity for Riverdale.

Table 49: Expected Seismic Activity in Riverdale

Mag. 6 or higher: **0.02 quakes** per year (or 1 quake every 62.5 years)
• Mag. 5 or higher: **0.09 quakes** per year (or 1 quake every 11.8 years)
• Mag. 4 or higher: **0.46 quakes** per year (or 1 quake every 2.2 years)
• Mag. 3 or higher: **8.3 quakes** per year
• Mag. 2 or higher: **59 quakes** per year (or 4.9 quakes per month)
• Mag. 1 or higher: **283 quakes** per year (or 23.6 quakes per month)

Roy has a moderate level of seismic activity. However, it has had at least two quakes above 6M since 1900, which suggests that earthquakes of this size occur infrequently, probably on average approximately every 60 to 65 years. Table 50 shows the expected seismic activity for Roy.

Table 50: Expected Seismic Activity in Roy

Mag. 6 or higher: **0.02 quakes** per year (or 1 quake every 62.5 years)
• Mag. 5 or higher: **0.09 quakes** per year (or 1 quake every 11.8 years)
• Mag. 4 or higher: **0.44 quakes** per year (or 1 quake every 2.3 years)
• Mag. 3 or higher: **8.2 quakes** per year
• Mag. 2 or higher: **59 quakes** per year (or 4.9 quakes per month)
• Mag. 1 or higher: **279 quakes** per year (or 23.2 quakes per month)

South Ogden has a moderate level of seismic activity. However, it has had at least two quakes above 6M since 1900, which suggests that earthquakes of this size occur infrequently, probably on average every 60 to 65 years. Table 51 shows the expected seismic activity for South Ogden.

Table 51: Expected Seismic Activity in South Ogden

Mag. 6 or higher: **0.02 quakes** per year (or 1 quake every 62.5 years)
• Mag. 5 or higher: **0.09 quakes** per year (or 1 quake every 11.8 years)
• Mag. 4 or higher: **0.46 quakes** per year (or 1 quake every 2.2 years)
• Mag. 3 or higher: **8.3 quakes** per year
• Mag. 2 or higher: **59 quakes** per year (or 5 quakes per month)
• Mag. 1 or higher: **285 quakes** per year (or 23.8 quakes per month)

Washington Terrace has a moderate level of seismic activity. However, it has had at least two quakes above 6M since 1900, which suggests that earthquakes of this size occur infrequently, probably on average approximately every 60 to 65 years. Table 52 shows the expected seismic activity for Washington Terrace.

Table 52: Expected Seismic Activity in Washington Terrace

Mag. 6 or higher: **0.02 quakes** per year (or 1 quake every 62.5 years)
• Mag. 5 or higher: **0.09 quakes** per year (or 1 quake every 11.6 years)
• Mag. 4 or higher: **0.44 quakes** per year (or 1 quake every 2.3 years)
• Mag. 3 or higher: **8.3 quakes** per year
• Mag. 2 or higher: **58 quakes** per year (or 4.9 quakes per month)
• Mag. 1 or higher: **274 quakes** per year (or 22.9 quakes per month)

Vulnerability Analysis

The vulnerability to earthquakes in Weber County varies, depending on factors such as local geological conditions, population density, and the quality of infrastructure. Generally, areas with higher population density and older infrastructure are more vulnerable to the impacts of an earthquake. The densely populated urban corridor along the Wasatch Front, including Salt Lake City, Ogden, and Provo, faces significant

risks from strong ground shaking, which can damage buildings, homes, and infrastructure. In addition, the high population density in this region increases the likelihood of injuries and economic repercussions in the event of a major earthquake.

During an earthquake, the ground shakes because energy is released in the Earth's crust. This energy radiates outward from the earthquake's origin through seismic waves. These waves can cause buildings and other structures to shake, leading to damage and potential destruction. The severity of the shaking and its impact depends on various factors, including the earthquake's magnitude, depth, distance from the epicenter, and the type of soil or rock beneath the affected area.

Regions near fault lines or areas with softer soil may experience greater shaking and ground movement during an earthquake, potentially causing more significant damage. Specifically, the areas near Weber County ski resorts are especially vulnerable to the secondary effects of earthquakes. The seismic activity could cause avalanches and landslides, creating dangers for skiers, tourists, and residents.

Because of its unique characteristics, the soft sedimentary fill in the Ogden Valley can amplify the shaking during an earthquake, increasing the potential for damage. When seismic waves pass through soft sediments, like loose sand or silt, they can prolong the shaking. The low stiffness of soft sediments allows significant deformation, slowing down the seismic waves and increasing their amplitudes. This phenomenon, known as site amplification, can significantly increase the potential for damage to buildings and infrastructure constructed in such areas.

Groundwater resources are essential for supporting ecosystems and human activities. However, groundwater resources can be at risk in areas prone to liquefaction. Liquefaction occurs when the ground loses its strength due to shaking during an earthquake, often causing soil to behave like a liquid. This phenomenon can lead to the contamination of groundwater sources and pose a significant threat to water quality.

Figure 73 shows areas in Weber County that may be affected by liquefaction, while Figure 74 shows geology and groundwater resources in Weber County.

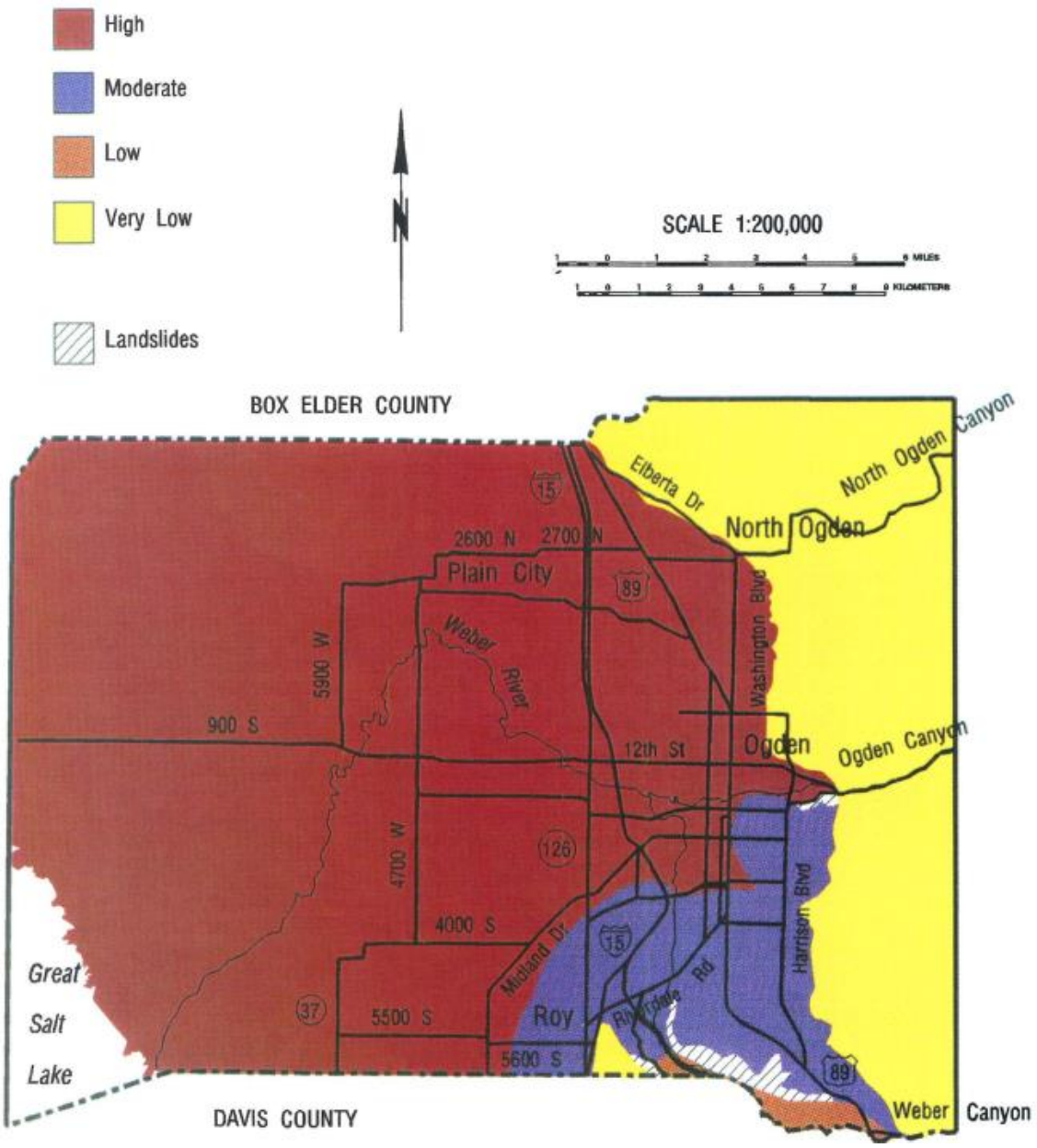


Figure 73: Potential Liquefaction Areas[107]

[107] Utah.gov, "Liquefaction-Potential Map for a Part of Weber County, Utah." https://ugspub.nr.utah.gov/publications/public_information/pi-27.pdf

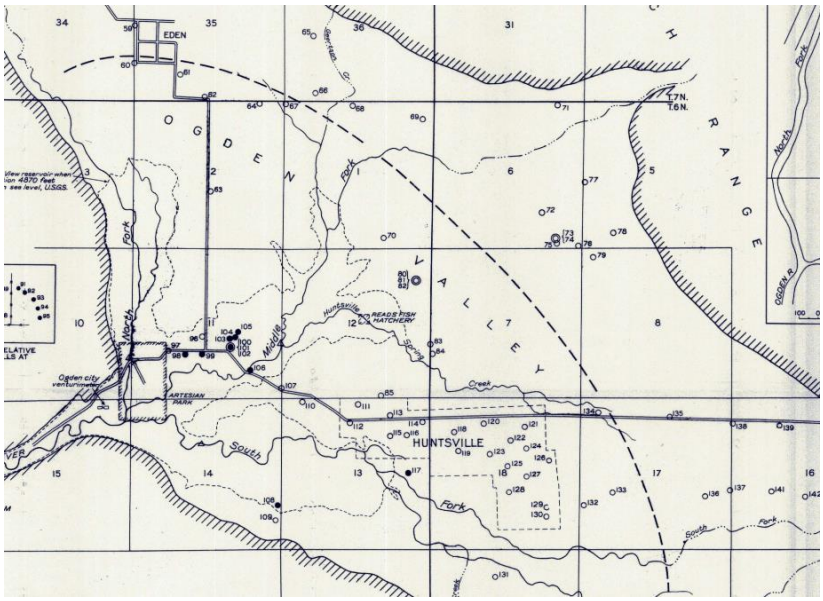


Figure 74: Geology and Ground Water Resources in Ogden Valley[108]

Multiple survey participants reported concern about earthquakes. A participant stated that an earthquake could continually cause loss to the transportation corridors of Ogden Canyon and the North Ogden Divide. Many were concerned that buildings, especially older buildings, were not built to withstand an earthquake. Several participants requested more public outreach to educate the public should a hazard event occur.

Table 53 indicates assets vulnerable to earthquake. Additional details about assets and potential impacts from earthquake are included in the Hazus results found in Table 58-Table 68.

Table 53: Earthquake Vulnerability Assessment

Plan Participant Name	Asset Type	Description
Weber County	Structures	A strong earthquake is likely to cause extensive structural damage to residences, businesses, and other occupancy types. Older structures built under less strict seismic standards are more likely to be damaged by an earthquake. Damage may be experienced across the county, although the location of most severe damage may vary depending on the location of the earthquake epicenter. Critical facilities such as fire, law enforcement, and medical care facilities may also be damaged or have reduced functionality following an earthquake. Over 99,000 structures in the county are potentially at

[108] USGS, "Geology and Ground-Water Resources of Ogden Valley, Utah." https://pubs.usgs.gov/wsp/0796d/plate-36.pdf

Plan Participant Name	Asset Type	Description
		risk, including 147 critical facilities (termed "essential facilities" in Hazus results).
	Systems	An earthquake is likely to damage and disrupt transportation routes including roads and rail, power, water distribution, and communication systems.
	Populations	Damage to structures or from contents may lead to injuries or loss of life to people in the area affected by the earthquake. Damage to residences may lead to some individuals being displaced from their homes.
	Other	Economic activities could be significantly impacted depending on the magnitude of the earthquake.
Farr West	Structures	Same as County
	Systems	Same as County
	Populations	Same as County
	Other	Same as County
Harrisville	Structures	Many older homes in Harrisville would be vulnerable to a large magnitude earthquake. Current city hall and public works buildings are older structures that would be vulnerable to an earthquake.
	Systems	Same as County
	Populations	Same as County
	Other	None
Hooper	Structures	2 schools, 7 churches, 1 community center and a command center are at risk. Mostly homes and single-story public buildings.

Plan Participant Name	Asset Type	Description
	Systems	Potential power and communications system loss. Could have significant economic impact, including substantially affecting farmland and farm animals
	Popula-tions	People who require power for medical purposes at an increased risk. Restricted communications an issue for those being remotely monitored.
	Other	None
Huntsville	Structures	Residences, business, and other structures could all be impacted.
	Systems	Roads and utilities could be damaged.
	Popula-tions	People could become isolated due to damage.
	Other	None
Marriott-Slaterville	Structures	Structures could be compromised citywide.
	Systems	Infrastructure such as utility and transportation systems could be compromised citywide.
	Popula-tions	Same as County
	Other	None
North Ogden	Structures	Residences could be damaged.
	Systems	Roads, water tanks and water lines are vulnerable,
	Popula-tions	Same as County
	Other	None

Plan Participant Name	Asset Type	Description
Ogden	Structures	Historic buildings in downtown Ogden, such as Union Station, are at risk. Residential areas with older homes that were not built to modern seismic standards. Critical facilities such as hospitals and schools are at risk.
	Systems	Critical infrastructure such as bridges could be damaged. Water and sewer systems, particularly older pipelines, are prone to rupture. Electrical and communications systems could be disrupted.
	Populations	Residents living in high-density urban areas or older neighborhoods are at risk.
	Other	Seismic activity could trigger landslides that would affect the natural landscape and contribute to damage. Economic impacts from business disruptions, particularly in downtown and commercial areas. The tourism industry would be impacted by damage to historic and cultural sites.
Plain City	Structures	Same as County
	Systems	Transportation infrastructure could be damaged. All points of access in or out of the city cross over bridges. Lift stations could be damaged, causing a failure of the sewer system. Many lift stations do not have generator backup power.
	Populations	Same as County
	Other	Problem soils and high ground water areas may lead to liquefaction and cause additional damage to structures, residences, and underground utilities.
Pleasant View	Structures	City buildings and fire stations could be damaged.
	Systems	Roads, water lines, and other infrastructure could be damaged.
	Populations	Same as County

Plan Participant Name	Asset Type	Description
	Other	None
Riverdale	Structures	Homes and businesses could be damaged.
	Systems	Infrastructure and roadways could be damaged.
	Popula-tions	The entire population could be affected.
	Other	None
Roy	Structures	Damage is expected to structures throughout the city, includ-ing City facilities.
	Systems	Roads and regional transportation systems would be dam-aged. Sewer lift stations at 4300 West and 4400 South could shut down. Sewers and waterlines could be damaged throughout the city. Water system storage tanks and pump stations at Hill AFB, 4000S, 4800 S, and 5175 S could be dam-aged.
	Population	Same as County
	Other	None
South Ogden	Structures	Older homes built before modern seismic codes were imple-mented are at higher risk of collapse or severe damage dur-ing an earthquake.
	Systems	Same as County
	Popula-tions	Significant risk to safety and lives of elderly residents who may have difficulty seeking cover or evacuating quickly. Those living in older homes
	Other	None
Uintah	Structures	Same as County
	Systems	Same as County

Plan Participant Name	Asset Type	Description
	Populations	Same as County
	Other	None
Washington Terrace	Structures	Homes and businesses could be damaged.
	Systems	Water and sewer systems are a concern.
	Populations	Health and safety and access to basic services are a concern.
	Other	None
West Haven	Structures	Homes and businesses throughout the city are likely to be affected.
	Systems	All systems are at risk of earthquake damages.
	Populations	Safety of all residents is a concern.
	Other	None
Roy Water Conservancy District	Structures	District facilities are at-risk.
	Systems	Water systems are at risk from earthquakes and the cascading impacts of earthquakes.
	Populations	None
	Other	None
Hooper Water Improvement District	Structures	3 wells, 6 storage tanks, 1 office, 1 shop
	Systems	Miles of waterline

Plan Participant Name	Asset Type	Description
	Popula-tions	None
	Other	None
Pineview Water District	Structures	District facilities are at risk.
	Systems	Infrastructure such as pipelines, power, and communications facilities are vulnerable to this hazard.
	Popula-tions	None
	Other	None
Taylor West We-ber Water District	Structures	Water storage tanks could be damaged.
	Systems	Pipelines could be damaged or fail.
	Population	None
	Other	None
Ogden School District	Structures	School district facilities may be damaged.
	Systems	Same as County
	Popula-tions	Employees and students/residents may be affected.
	Other	None
Weber Morgan Health Depart-ment	Structures	Older buildings constructed before 1970 may be at risk of falling bricks.
	Systems	None

Plan Participant Name	Asset Type	Description
	Popula-tions	None
	Other	None
Weber School District	Structures	Older buildings constructed before 1970 may be at risk.
	Systems	Same as County
	Popula-tions	Employees and students/residents may be affected.
	Other	None
West Warren-Warren Water Improvement District	Structures	District building could be damaged.
	Systems	Water lines and water pump stations could be damaged and shut down. Water would not flow or could be contaminated.
	Popula-tions	Residents in service area would be affected if water delivery is disrupted.
	Other	None
Central Weber Sewer Improve-ment District	Structure	Wastewater collection and treatment structures could be damaged.
	Systems	Structural damage could disrupt operations to customers.
	Popula-tions	Disruption to district customers.
	Other	None
North View Fire District	Structures	Fire stations and city buildings are at risk.

Plan Participant Name	Asset Type	Description
	Systems	Roads, water lines, and other infrastructure could be damaged.
	Populations	Residents in service area and district employees could be affected.
	Other	None
Weber Fire District	Structure	District buildings and structures throughout the county could be impacted, especially in mountainous areas.
	Systems	Infrastructure throughout the service area could be damaged.
	Population	Individuals throughout the service area could be injured, requiring emergency response from the district.
	Other	None

Impacts

Table 54 presents detailed data on the risk exposure values and the associated costs of the project in the event of an earthquake. This information is essential for assessing the financial impact and risk mitigation strategies related to the project.

Table 54: Earthquake Risk Exposure Value, Weber County*[109]

Building Value	Population Equivalence	Population	Agriculture	Total
$42,642,877	$3,041,786,800	262,223.00	n/a	$3,084,429,677

*Note: Amounts in $Thousands.

Table 55 and Table 56 present detailed information on the estimated annual financial losses to buildings and the population in Weber County from earthquakes. These data provide an overview of the projected economic impact of earthquakes on the area, considering both structural damage to buildings and potential effects on the population.

[109] FEMA, "National Risk Index Weber County Utah." https://hazards.fema.gov/nri/report/viewer?dataLOD=Counties&dataIDs=C49057#SectionExpectedAnnualLoss

Table 55: Expected Annual Loss from Earthquakes, Weber County[110]

Building Value	Population Equivalence	Population	Total
$42,732,971	$20,296,743	1.75	$63,029,714

Table 56: Expected Annual Loss from Earthquakes to Jurisdictions in Weber County[111]

Jurisdiction	Expected Annual Loss	Exposure Loss	Vulnerability Score
Farr West	$988K	$63B	Relatively High
Harrisville	$931K	$57B	Relatively High
Hooper	$797K	$71B	Relatively High
Huntsville	$296K	$47B	Relatively Moderate
Marriott-Slaterville	$722K	$28B	Relatively High
North Ogden	$785K	$59B	Relatively High
Ogden	$2.3M	$30B	Very High
Plain City	$1.3M	$77B	Relatively High
Pleasant View	$1.7M	$68B	Relatively High
Riverdale	$1.6M	$61B	Relatively High
Roy	$1M	$71B	Relatively High
South Ogden	$694K	$37B	Relatively High
Uintah	$1.3M	$80B	Relatively High
Washington Terrace	$1.2M	$67B	Relatively High
West Haven	$799K	$55B	Relatively High

HAZUS

The HAZUS-MH modeling program was used to assess Weber County's earthquake vulnerability. The data presented in Table 57 through Table 68 are for a 7.2M event near the County's most populated areas. These specific locations and magnitudes were chosen based on their probability and proximity. The enhanced HAZUS-MH inventory for all infrastructure was employed in this assessment. A total of 4 hospitals, 107 schools, 2 EOCs, 13 Police Stations, and 21 Fire Stations are included in the critical facilities.

[110] Ibid.
[111] Ibid.

The Hazus scenario region includes over 89,000 households with a total population of 262,223 people. Table 57 indicates the number of those potential displaced by earthquake impacts to residential housing and the proportion of those displaced who are likely to seek public shelter.

Table 57: Earthquake Scenario Sheltering Requirements

	Shelter Requirements
Persons Seeking Shelter	1,694
Displaced Households	3,132

Table 58: Earthquake Scenario Direct Economic Loss of Buildings

	Direct Economic Loss of Buildings
Total Building Loss	$11,562,616,000
Total Building Value (Exposure)	$42,642,877,000
Total Count Buildings	99,499

Table 59: Earthquake Scenario Direct Economic Loss of Transportation

	Direct Economic Loss of Transportation
Total Transportation Loss	$124,776,000
Total Transportation Value (Exposure)	$3,772,607,000

Table 60: Earthquake Scenario Direct Economic Loss of Utilities

	Direct Economic Loss of Utilities
Total Utility Loss	$141,811,000
Total Utility Value (Exposure)	$757,794,000

Table 61: Earthquake Scenario Households Affected by Water or Power Outages

	Households Affected
Households without Potable Water	0
Households without Power	65,622

	Households Affected
Total Households	89,595

Table 62: Essential Facility Functionality after Earthquake Scenario

Jurisdiction	Total	Day 1 Functionality > 50%	Day 7 Functionality > 50%	Day 30 Functionality > 50%
Farr West	4	3	4	4
Harrisville	4	4	4	4
Hooper	2	1	2	2
Huntsville	1	1	1	1
Marriott-Slaterville	5	5	5	5
North Ogden	8	1	1	7
Ogden	58	2	3	13
Plain City	3	0	3	3
Pleasant View	6	0	1	6
Riverdale	5	0	0	5
Roy	13	0	0	7
South Ogden	12	0	0	7
Uintah	1	0	0	1
Washington Terrace	9	0	0	4
West Haven	6	4	6	6
Unincorporated	10	3	7	10
Total	147	24	37	85

Table 63: Cost of Damage by Occupancy Type

	None	Slight	Moderate	Extensive	Complete	Total
Commercial	1,562	2,297	1,500	905	1,650	7,914
Industrial	64	75	76	64	79	359
Education	24	20	14	15	35	109
Other Residential	1,179	2,710	1,092	612	592	6,186
Single Family	25,428	44,496	12,319	485	698	83,427

	None	Slight	Moderate	Extensive	Complete	Total
Religion	41	50	46	33	47	216
Agriculture	312	302	218	126	137	1,095
Government	44	113	21	6	10	193
Total	28,655	50,063	15,286	2,246	3,249	99,499

Building losses include direct losses and costs to repair or replace damage to building, contents and inventory, and indirect losses or businesses interruption losses associated with the inability to operate a business because of damage caused by the earthquake. Of the over $11 billion in losses sustained in this scenario, 79% were direct losses and 21% were related to business interruption. Residential buildings account for over 20% of the total loss at $2.29 Billion. Commercial losses account for $4.8 billion, Industrial losses $531 million, and all other occupancies $3.92 billion. A summary of losses for the participating jurisdictions is included in Table 64–Table 68.

Table 64: Earthquake Damage Losses by City Participant*

City	Structural Damage	Non-Structural Damage	Building Damage	Contents Damage	Inventory Damage	Relocation Cost	Income Loss	Rental Income Loss	Wage Loss	Total Loss
Farr West	$21,969	$80,380	$102,350	$39,594	$6,783	$9,208	$3,689	$4,661	$3,529	$169,812
Harrisville	$17,289	$64,515	$81,804	$29,954	$5,350	$7,967	$5,066	$4,322	$6,628	$141,089
Hooper	$11,629	$35,379	$47,008	$15,664	$3,959	$3,340	$465	$1,059	$292	$71,787
Huntsville	$313	$2,012	$2,324	$1,082	$111	$83	$201	$74	$168	$4,044
Marriott-Slaterville	$14,276	$41,192	$55,468	$21,303	$5,548	$5,802	$2,486	$2,832	$2,459	$95,896
North Ogden	$42,793	$173,921	$216,714	$71,749	$6,547	$21,925	$5,472	$6,416	$8,372	$337,195
Ogden	$792,056	$3,460,715	$4,252,771	$1,566,875	$93,275	$796,509	$325,918	$265,771	$369,230	$7,670,350
Plain City	$23,671	$56,306	$79,977	$26,175	$9,111	$7,106	$1,673	$2,554	$1,319	$127,916
Pleasant View	$23,865	$94,629	$118,493	$43,052	$5,928	$10,148	$4,006	$4,697	$4,535	$190,860
Riverdale	$57,694	$194,291	$251,985	$79,314	$17,551	$31,409	$24,714	$18,587	$24,075	$447,635
Roy	$110,876	$464,704	$575,580	$188,802	$8,123	$75,890	$37,697	$26,548	$44,842	$957,481
South Ogden	$54,698	$225,368	$280,066	$93,960	$5,670	$32,535	$22,883	$15,580	$28,585	$479,278
Uintah	$3,210	$12,811	$16,022	$5,239	$416	$1,912	$924	$846	$1,241	$26,599
Washington Terrace	$48,280	$196,067	$244,347	$77,188	$2,362	$28,291	$15,164	$8,973	$25,063	$401,387
West Haven	$41,481	$127,390	$168,872	$56,736	$12,643	$16,760	$6,153	$8,592	$6,593	$276,348
Unincorporated Weber County	$24,578	$74,052	$98,630	$35,992	$8,722	$8,713	$4,294	$4,384	$4,201	$164,936
Total	$1,288,678	$5,303,731	$6,592,409	$2,352,680	$192,098	$1,057,598	$460,804	$375,895	$531,132	$11,562,616

*Note: Amounts in $Thousands

Table 65: Earthquake Damage Losses by School District Participant*

School District	Structural Damage	Non-Structural Damage	Building Damage	Contents Damage	Inventory Damage	Relocation Cost	Income Loss	Rental Income Loss	Wage Loss	Total Loss
Ogden	$786,417	$3,442,581	$4,228,999	$1,558,283	$92,114	$793,758	$323,798	$263,894	$367,911	$7,628,756
Weber	$502,261	$1,861,150	$2,363,410	$794,396	$99,984	$263,841	$137,007	$112,001	$163,221	$3,933,860
Total	$1,288,678	$5,303,731	$6,592,409	$2,352,680	$192,098	$1,057,598	$460,804	$375,895	$531,132	$11,562,616

*Note: Amounts in $Thousands

Table 66: Earthquake Damage Losses by Water District Participant*

Water District	Structural Damage	Non-Structural Damage	Building Damage	Contents Damage	Inventory Damage	Relocation Cost	Income Loss	Rental Income Loss	Wage Loss	Total Loss
Bona Vista	$50,388	$142,058	$192,446	$67,576	$17,205	$20,311	$8,708	$10,870	$8,670	$325,785
Hooper	$23,788	$92,475	$116,263	$39,005	$5,788	$9,433	$1,257	$3,239	$1,416	$176,401
Pineview – South Ogden	$244,805	$1,284,531	$1,529,336	$595,788	$10,712	$400,272	$81,674	$68,965	$144,780	$2,831,526
Pineview – Weber/Box Elder	$77,897	$317,907	$395,804	$128,329	$10,072	$39,638	$13,169	$13,927	$23,019	$623,957
Taylor West Weber	$24,827	$67,402	$92,229	$31,366	$9,056	$8,964	$3,271	$4,068	$3,457	$152,412
Warren/West Warren	$2,490	$4,982	$7,472	$2,527	$906	$630	$213	$308	$134	$12,189
Overlap: Bona Vista & Pineview – Weber/Box Elder	$65,428	$217,916	$283,344	$103,066	$21,506	$26,239	$12,310	$12,877	$14,097	$473,439
Other	$799,054	$3,176,460	$3,975,514	$1,385,023	$116,854	$552,111	$340,202	$261,643	$335,560	$6,966,906
Total	$1,288,678	$5,303,731	$6,592,409	$2,352,680	$192,098	$1,057,598	$460,804	$375,895	$531,132	$11,562,616

*Note: Amounts in $Thousands

Table 67: Earthquake Damage Losses by Fire District Participant*

Fire District	Structural Damage	Non-Structural Damage	Building Damage	Contents Damage	Inventory Damage	Relocation Cost	Income Loss	Rental Income Loss	Wage Loss	Total Loss
North View	$84,187	$334,025	$418,212	$145,183	$17,894	$40,158	$14,612	$15,489	$19,639	$671,188
Weber	$118,386	$375,999	$494,385	$176,960	$38,353	$46,269	$18,582	$22,784	$18,647	$815,980
Other	$1,086,105	$4,593,707	$5,679,812	$2,030,537	$135,851	$971,171	$427,610	$337,622	$492,846	$10,075,448
Total	$1,288,678	$5,303,731	$6,592,409	$2,352,680	$192,098	$1,057,598	$460,804	$375,895	$531,132	$11,562,616

*Note: Amounts in $Thousands

Table 68: Earthquake Damage Losses by Sewer District Participant*

Sewer District	Structural Damage	Non-Structural Damage	Building Damage	Contents Damage	Inventory Damage	Relocation Cost	Income Loss	Rental Income Loss	Wage Loss	Total Loss
Central Weber	$984,781	$4,147,608	$5,132,389	$1,854,693	$141,624	$872,306	$358,656	$297,568	$424,781	$9,082,016
Other	$303,897	$1,156,123	$1,460,020	$497,987	$50,474	$185,293	$102,148	$78,327	$106,351	$2,480,599
Total	$1,288,678	$5,303,731	$6,592,409	$2,352,680	$192,098	$1,057,598	$460,804	$375,895	$531,132	$11,562,616

*Note: Amounts in $Thousands

The potential impacts of an earthquake on Weber County could be significant. In terms of population, there could be injuries, displacement, and loss of life, depending on the severity of the earthquake. Infrastructure, such as roads, bridges, and buildings, could be damaged, leading to disruptions in transportation and communication. The economy could suffer from business closures, loss of productivity, and increased demand for emergency services. Agriculture may also be affected, with potential damage to crops, livestock, and irrigation systems.

Table 69: Impacts of Earthquake by Jurisdiction

Plan Participant Name	Impacts
Weber County	The Weber segment of the Wasatch fault is capable of generating a 7.4-magnitude quake. This type of quake would create catastrophic losses to nearly all infrastructure, both public and private. Critical facilities, such as fire, law enforcement, and medical care facilities, may also be damaged or have reduced functionality following an earthquake. Loss of life would be significant if the earthquake were to occur in the overnight hours.
Farr West City	An earthquake in Farr West could result in extensive damage or disruption to public and private infrastructure, including critical facilities, transportation routes, water supplies, and communications systems. Loss of life or injury may occur. Economic losses could occur, including relocation and recovery costs and reduced business and rental income.
City of Harrisville	City structures, particularly older homes and older structures, such as the current city hall and public works buildings, could be damaged or destroyed during an earthquake. Systems, including transportation, communications, and water systems could be disrupted or destroyed. The entire population is at-risk of injury and death, particularly populations living or working in older more high-risk structures.
City of Hooper	Depending on their magnitude, earthquakes could cause loss of power and communications. Those who require power for medical purposes would be at increased risk. Restricted communications could be an issue, particularly for those who are being remotely monitored. Earthquakes could substantially affect farmland and farm animals and significantly impact two schools, seven churches, a community center that could be used for temporary housing, and a command center.
City of Huntsville	All structures, buildings, roads, and utilities could be damaged or destroyed, and the city could be isolated from almost everything. Residents could be injured or killed.
City of Marriott-Slaterville	Structures and infrastructure could be compromised citywide. Residents could be injured or killed.
City of North Ogden	Water tanks, water lines, homes, and roads could be damaged or destroyed. People could be injured or killed.
City of Ogden	Earthquakes could cause major damage to infrastructure throughout the city, and the water supply could be disrupted. Structures could be damaged or destroyed, such as historic buildings in downtown Ogden, residential areas with

Plan Participant Name	Impacts
	older homes not built to modern seismic standards, and critical infrastructure such as hospitals, schools, and bridges. Residents in high-density areas and older neighborhoods could be injured or killed, particularly vulnerable populations such as the elderly and disabled. Water and sewer systems, particularly older pipelines, are prone to rupture. The electrical and communications systems also could be impacted. Earthquakes could cause landslides that affect natural landscapes. The economy could be affected if business operations are disrupted, particularly in the downtown and commercial areas. The tourism industry could be impacted by damage to historical and cultural sites.
City of Plain City	Earthquakes are the highest hazard concern. They could trigger other hazards. Transportation infrastructure damage is also a high concern because all points of access in or out of the city cross over bridges. There is a high concern for older utility infrastructure. There are 18 lift stations 20' to 25' in the ground, lifting the sewer from one point to the other. If a lift station goes down, the sewer will back up. Only 9 of the 18 have generator backup power. Services could be disrupted or damaged. There is also a high concern for problem soils and high groundwater areas liquefying, causing issues with structures, residents, and underground utilities.
City of Pleasant View	Roads, fire stations, city buildings, water lines, and infrastructure could be disrupted or damaged by an earthquake. People could be injured or killed.
Ogden School District	Facilities could be damaged or destroyed during an earthquake event. Employees and students/residents in the boundary area could be injured or killed. School activities may be disrupted due to damaged facilities, lack of staffing, or citywide impacts.
City of Riverdale	Infrastructure, the residential area on Riverbed, businesses, homes, and roadways could be damaged or destroyed. People could be injured or killed.
City of Roy	Sewer lift station shutdowns (4300 West and 4400 South Lift Stations), damaged sewers throughout the city, damaged waterlines throughout the city, damage to water system storage tanks and pump stations (Hill Air Force Base, 4000 S, 4800 S, 5175 S wellhouses), damage to structures throughout the city including City facilities, damage to local roads and regional transportation facilities. There is a potential for injury or loss of life.
City of South Ogden	Many homes in the city were built before modern seismic codes were implemented. These structures are at higher risk of collapse or severe damage during an earthquake, posing a significant risk to the safety and lives of elderly residents, who may have difficulty evacuating quickly. Transportation, communications, and water systems also could be disrupted or destroyed.

Plan Participant Name	Impacts
City of Uintah	Many homes and businesses as well as one critical facility could be damaged or destroyed by an earthquake, particularly older structures built prior to current codes. Infrastructure, including power, transportation, water, and communication systems could be disrupted, damaged, or destroyed. There may also be negative impacts as well as injury or loss of life.
City of Washington Terrace	Water and sewer sustainability is essential for the community's health and safety. The city has several miles of water and sewer lines that are regularly evaluated, rated, and included in the Capital Investment Plan. Water and sewer systems are at risk from an earthquake, so they are a high priority in the city's mitigation plan. The health and safety of the community could be negatively impacted if water systems are damaged or destroyed. Additional public and private infrastructure, including homes and businesses, could be damaged or destroyed. The entire population is at-risk of injury or death.
City of West Haven	All city services could be disrupted or destroyed. Infrastructure, including homes, businesses, and community lifelines, could be disrupted or destroyed. Residents could be injured or killed.
Hooper Water District	Three wells, six storage tanks, one office, one shop, and miles of waterline could be affected. Miles of waterline could be damaged or destroyed. The district's ability to provide clean drinking water to its service area may be affected by an earthquake. Lack of water could have negative health impacts on the surrounding area.
Pineview Water System	Infrastructure, including pipelines, energy, and communications infrastructure could be disrupted, damaged, or destroyed. A severe earthquake could impact the district's ability to operate.
Roy Water Conservancy District	District facilities could be damaged by an earthquake. Water infrastructure could be damaged or destroyed, resulting in disruptions or loss of services to customers.
Taylor West Weber Water District	Storage tanks could be damaged, and pipelines could fail. A severe earthquake could impact the district's ability to operate.
West Morgan Health Department	Buildings, particularly those constructed before 1970, may be damaged or destroyed.
Weber School District	Buildings, particularly those constructed before 1970, may be damaged or destroyed. Employees and students may be injured or killed.

Plan Participant Name	Impacts
West Warren-Warren Water Improvement District	Water lines, pump stations, and district buildings could be damaged or shut down. Water would not flow or could be contaminated. Residents could experience negative health impacts due to reduced water availability.
North View Fire District	Roads, fire stations, city buildings, water lines, and infrastructure could be damaged or destroyed. The district may be called upon to respond to an earthquake event, placing district employees at additional risk of injury. Residents in the district's service area could be injured or killed during an earthquake.
Weber Fire District	There could be a countywide impact on all assets, especially in mountainous areas that are prone to earthquakes. District services would be needed to respond to injuries and other impacts of an earthquake. Residents could be injured or killed.
Central Weber Sewer Improvement District	Operations of wastewater collection and treatment facilities could be disrupted. Customers could experience disruption of district services, negatively impacting public health.

Changes in Development

A moderate to large earthquake can significantly impact various aspects of development, including people, infrastructure, land use, and the economy. In terms of people, earthquakes can cause injury, displacement, and loss of life, leading to short-term and long-term impacts on communities. Infrastructure, such as buildings, roads and bridges, and utilities can be damaged or destroyed, disrupting transportation, communication, and access to essential services. Land use can be affected, with changes in land suitability for development due to ground shaking, liquefaction, landslides, and other geologic hazards. Economically, earthquakes can cause costly repairs to infrastructure, loss of productivity, and impacts on local and regional economies due to business interruptions and decreased consumer confidence.

Weber County continues to be highly vulnerable to earthquakes, as there has been no significant change in its seismic risk over the past decade. This heightened vulnerability is primarily due to the county's proximity to the active Wasatch Fault, which poses a substantial seismic threat to the region.

Table 70: Earthquake Changes in Development Summary

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Weber County	Stayed the Same.	Since the last plan update, there have been no changes in development that impact risk from earthquake. This hazard continues to remain a concern which the County is at risk to.
Farr West	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from earthquake.
Harrisville	Decreased	The city updates its ordinances to reflect current building codes, which helps ensure new development is adequate for earthquakes. However, older buildings that have not been retrofitted are still susceptible to earthquake damage . The previous plan was adopted in 2016, and building codes were revised to reflect building standards in 2017.
Hooper	Decreased	Hooper is developing a city emergency plan, including a push for increased CERT members.
Huntsville	Decreased	The city has decreased risk because of more individual emergency preparedness.
Marriott-Slaterville	Increased	The city has an increased population and aging structures.
North Ogden	Increased	The city has increased risk because of development higher on the mountain.
Ogden	Increased	More high-density housing could be impacted. The Make Ogden downtown plan includes significant new construction and redevelopment projects that could increase structures' density in earthquake-prone areas. Ensuring these developments adhere to updated seismic building codes is crucial to reducing vulnerability. Investments in infrastructure, such as bridges and public buildings, must incorporate earthquake-resistant designs. The increasing population in urban areas means more people could be affected by earthquakes. Emergency response and preparedness plans must be scaled accordingly. As land use shifts toward more urban development, the concentration of assets in vulnerable areas increases.
Plain City	Stayed the Same	The hazard vulnerability has remained the same. Put together a plan to add two backup emergency generators for backup power for the sewer lift

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
		stations that need them yearly. Updated the City's Sensitive Land Use Ordinance for buildings within High-ground water, floodplain, or wetland areas.
Pleasant View	Increased	There is an increased risk due to residential development going further up the mountains closer to fault lines.
Riverdale	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from earthquake.
Roy	Increased	There is an increased risk due to the development of increased sewer, water, and transportation facilities. All of these facilities are vulnerable to damage in an earthquake.
South Ogden	Decreased	Critical infrastructure is being upgraded, with projects completed every year. Many single-family homes were built before modern seismic codes.
Uintah	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from earthquake.
Washington Terrace	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from earthquake.
West Haven	Stayed the Same	Since the last plan update, vulnerability has stayed the same due to no changes in development.
Ogden School District	Decreased	The school district's risk has decreased due to seismic reinforcement and the replacement of unreinforced masonry (URM) structures with seismic-resistant buildings.
Hooper WID	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from earthquake.
Pineview Water System	Increased	There is an increased risk because of the increase in population and the construction of buildings.
Roy Water Conservancy District	Increased	As years pass without an earthquake, probabilities increase that there will be one.
Taylor West Weber Water District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from earthquake.

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Weber-Morgan Health Department	Stayed the Same	Health Department buildings still at risk of seismic activity impact due to exterior building tiles conditions.
Weber School District	Decreased	The rebuilding of Roy Jr. High School and the current reconstruction of Roosevelt Elementary School have decreased the overall vulnerability to school district properties.
West Warren-Warren WID	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from earthquake.
Central Weber Sewer Improvement District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from earthquake.
Weber Fire District	Stayed the Same	The district has built an addition to our administration offices, which had to meet earthquake specifications during construction. However, the remaining infrastructure is unchanged.
North View Fire District	Increased	There is an increased risk due to residential development going further up the mountains closer to fault lines.

Secondary Hazards

Cascading natural hazards refer to events triggered by a primary natural disaster, leading to secondary and tertiary impacts. These cascading effects can exacerbate the initial damage and cause a more widespread and severe crisis. For example, earthquakes can trigger tsunamis, landslides, fires, and infrastructure damage, leading to displacement, economic impact, and psychological stress.

The cascading or secondary impacts of earthquakes include the following:

1. Tsunamis: Earthquakes can trigger tsunamis, which are large ocean waves that can cause widespread destruction along coastlines.
2. Landslides: The shaking from an earthquake can cause landslides, particularly in hilly or mountainous areas. These can lead to further destruction and block transportation routes.
3. Fires: Earthquakes can rupture gas lines, ignite electrical fires, or topple flammable materials, leading to widespread fires that can cause additional damage and loss of life.
4. Infrastructure Damage: Earthquakes can cause buildings, bridges, and roads to collapse, disrupting transportation, communication, and access to essential services.

5. Displacement and Homelessness: The destruction of homes and infrastructure can lead to large-scale displacement of people and homelessness, creating humanitarian crises.
6. Economic Impact: The overall economic impact of earthquakes can be significant, including loss of livelihoods, damage to businesses, and long-term economic disruption.
7. Psychological Impact: Earthquakes can have long-lasting psychological effects on individuals and communities, leading to anxiety, trauma, and mental health challenges.

These cascading impacts highlight earthquakes' complex and far-reaching consequences, emphasizing the importance of preparedness, mitigation, and response efforts to minimize their effects.

Extreme Cold

Extreme cold events occur when temperatures drop significantly below average in a particular area. In places not used to winter weather, temperatures nearing the freezing point can also be considered extreme cold. According to the National Weather Service (NWS) Instruction 10-1605, **cold weather** is defined as a period of low temperatures or wind chill temperatures that reach or exceed locally or regionally defined advisory conditions (usually -18°F). On the other hand, **extreme cold** is defined as a period of extremely low temperatures or wind chill temperatures that reach or exceed locally or regionally defined warning criteria (typically around -35°F). There may be cases where advisory criteria are not met, but the combination of seasonably low temperatures and low wind chill values (approximately 15°F below average) may harm human health.

Although extreme cold can occur throughout Weber County, its severity depends on topography and climate. A significant drop in temperature combined with increased wind speed can cause the body's core temperature to fall rapidly, leading to an increased risk of illness, such as frostbite and hypothermia. Such conditions can be life-threatening, particularly for those not adequately dressed for the weather, and can affect anyone, though the elderly, the homeless, and infants are the most vulnerable. Table 71 shows the symptoms and treatment for frostbite and hypothermia.

Table 71: Extreme Cold Symptoms and Aid[112]

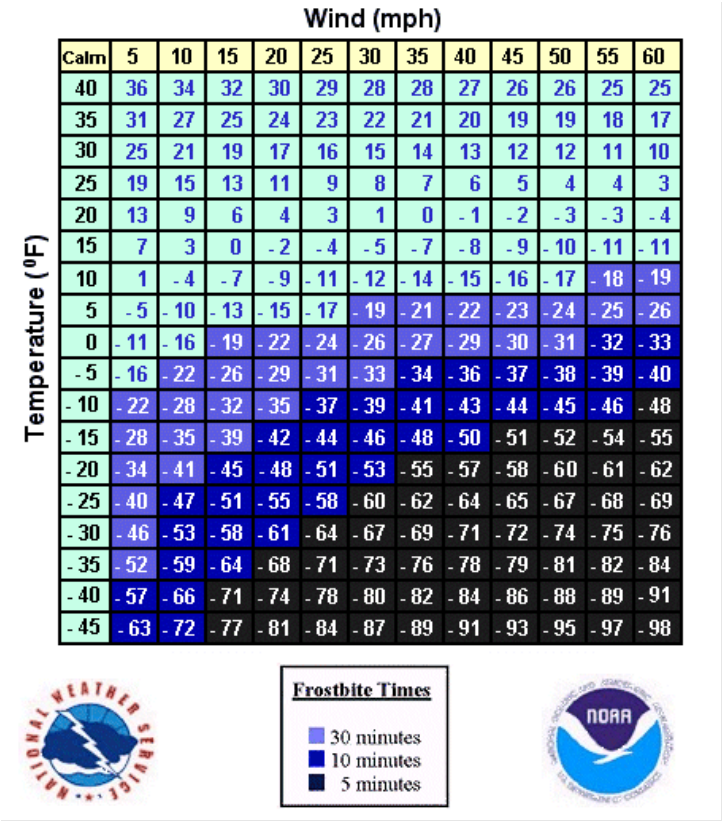
Illness	Symptoms	Treatment
Frostbite	An injury to the body caused by freezing body tissue. There will be a loss of feeling in the affected area, with the extremities (fingers, toes, ear lobes, or the tip of the nose) being the most susceptible parts of the body.	Medical attention is needed immediately. The area should be *slowly* rewarmed.
Hypothermia	Abnormally low body temperature (below 95°F). Warning signs include uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness, and apparent exhaustion.	Medical attention is needed *immediately*. If it is not available, begin warming the body *slowly*.

Extreme cold can significantly impact daily life, causing everything from school closures to transportation disruptions. It can also negatively impact infrastructure and housing. For example, pipes can burst in areas with no heat or poor insulation. According to the NWS, cold weather can kill livestock and damage crops. In late spring or early fall, cold air outbreaks can harm or kill plants and flowers and crops in fields. A freeze occurs when temperatures drop below 32°F, and its effects are significant during the growing

[112] National Weather Service, "Wind Chill Chart." https://www.weather.gov/grb/windchiil

season. Frost forms on clear, calm nights and can occur when the air temperature is in the mid-30s. Each plant species has a different tolerance for low temperatures.

The severity of extreme cold, or cold waves, is usually measured using the Wind Chill Temperature (WCT) Index. This index provides a formula for calculating the dangers of winter winds and freezing temperatures. Essentially, it calculates the temperature felt when the effects of wind speed are added to the base air temperature. Figure 75 is the Wind Chill Chart developed by NWS. It shows the likelihood of a cold disorder based on temperature and wind speed.



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

Figure 75: National Weather Service Wind Chill Chart[113]

Location

Utah is one of the coldest western states in the US and can experience extremely low temperatures during winter, with some areas reaching subzero temperatures. The coldest areas in Utah are typically found in the higher elevations of mountains and plateaus. One of the coldest places in the state is the Bear River Valley in the western part of Weber County. However, temperatures vary greatly depending on the time of year and weather patterns. Figure 76 shows the number of days below freezing in Weber County between 1976 and 2005.

[113] Ibid.

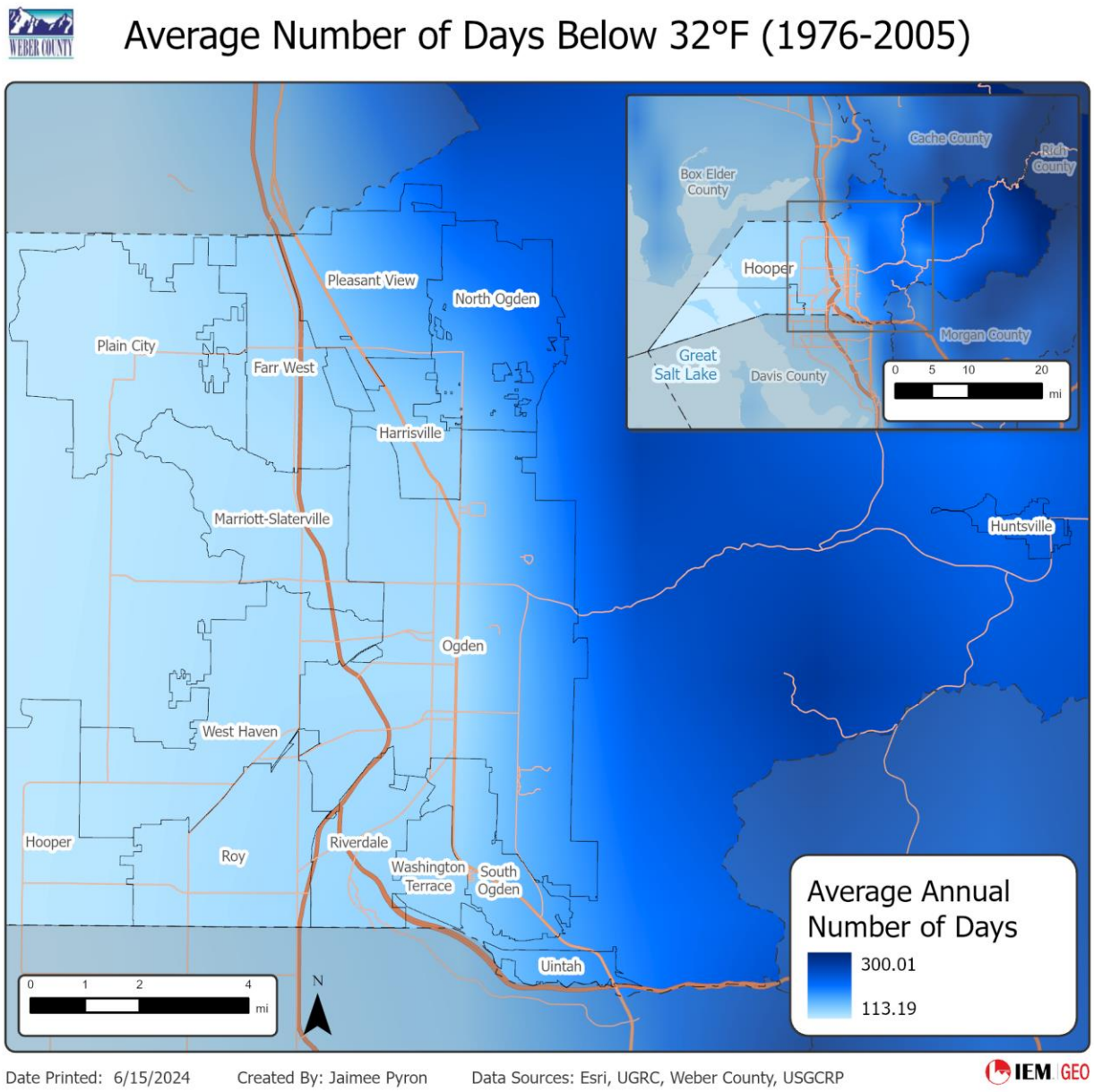


Figure 76: Average Number of Days Below 32°F, Weber County, 1976–2005

Magnitude/Extent

The expected intensity range for extreme cold in Weber County can vary, but temperatures sometimes drop below 0°F during winter. The lowest temperature ever recorded in Weber County was -42°F in 1989. Extreme cold weather events can significantly impact a community beyond their effects on humans and properties, including disruption of transportation systems, power outages, and damage to crops and natural ecosystems.

Extreme temperature events usually offer more than 24 hours of warning before they occur. Such events in Weber County typically last from a few days to a few weeks. Table 72 lists the warning and advisory thresholds established by the NWS offices that cover the State of Utah.

Table 72: Warning and Advisory Thresholds for Extreme Cold in Utah

Warning/Advisory	Description
Wind Chill Warning	Issued when wind chill values will fall below -30°F.
Wind Chill Advisory	Issued when wind chill values fall between -20°F and -29°F.

The wind chill temperature is how cold people and animals feel when outside. Wind chill is based on the rate of heat loss from exposed skin caused by wind and cold. As the wind increases, it draws heat from the body, driving down skin temperature and eventually the internal body temperature. Therefore, the wind makes it feel much colder. If the temperature is 0°F and the wind is blowing at 15 mph, the wind chill is -19°F. At this wind chill temperature, exposed skin can freeze in 30 minutes. The NWS Wind Chill Temperature uses advances in science, technology, and computer modeling to provide an accurate, understandable, and useful formula for calculating the dangers from winter winds and freezing temperatures.[114]

Extreme cold could impact all jurisdictions in Weber County excluding Marriott-Slaterville, Plain City, Roy, Pineview Water Systems, and Central Weber Sewer Improvement District where risk is very low.

[114] Understanding Wind Chill. https://www.weather.gov/safety/cold-wind-chill-chart

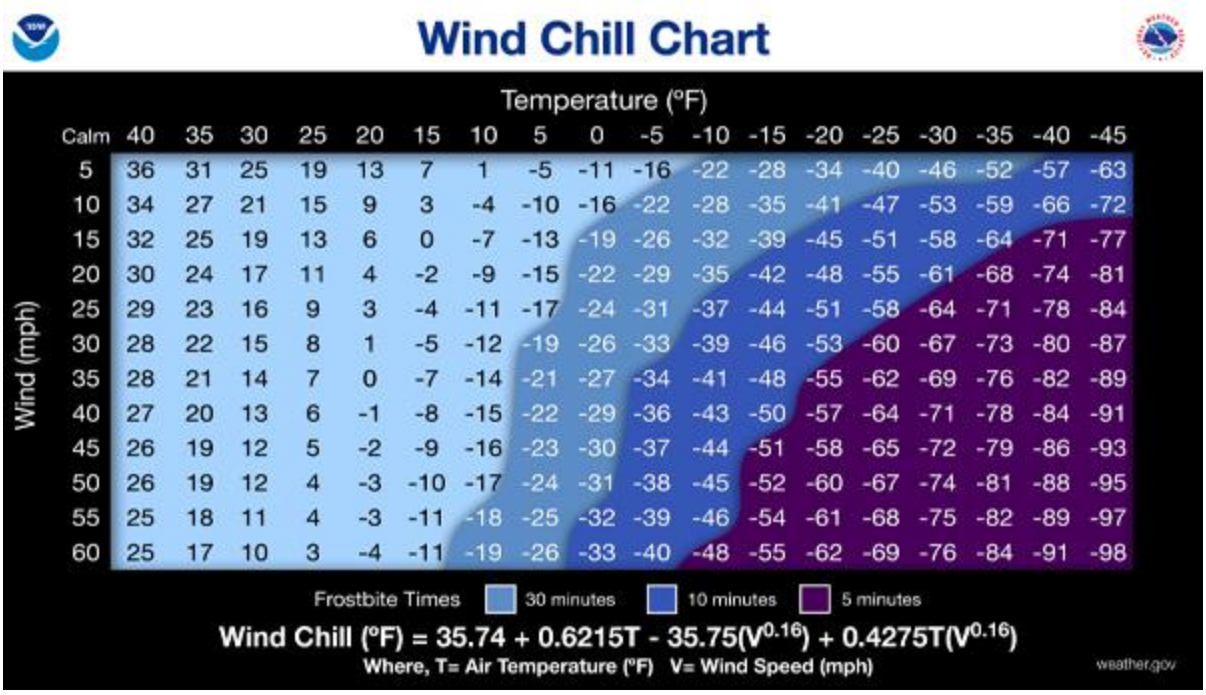


Figure 77: National Weather Service Wind Chill Chart

Previous Occurrences

Based on the FEMA Disaster Declarations Database, Weber County has received no designation for extreme cold disaster declarations since the last plan update. However, NOAA has developed a searchable database for all sorts of weather events. Figure 78 shows the results of a search for cold weather events for the 10 years before July 1, 2024.

Storm Events Database

Search Results for Weber County, Utah

Event Types: Blizzard, Cold/Wind Chill, Extreme Cold/Wind Chill, Heavy Snow, Winter Storm, Winter Weather

Weber county contains the following zones:
Northern Wasatch Front, Wasatch Mountain Valleys, Wasatch Mountains I-80 North, Northern Wasatch Front, Wasatch Back, Wasatch Mountains I-80 North

144 events were reported between 07/01/2015 and 06/30/2024 (3288 days)

Summary Info:

Number of County/Zone areas affected:	4
Number of Days with Event:	92
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	5
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	3

Figure 78: Results for Cold-Related Events, Weber County, July 2015–June 2024[115]

Probability of Future Occurrences

Given a record of 92 cold weather events between 2015 and 2024, the likelihood of this hazard is considered **Highly Likely**. It is important to note that climate change is affecting weather patterns globally, and it is possible that Weber County could see an increase in extreme cold in the future. Climate change can cause disruptions in the polar jet stream, leading to more frequent cold air outbreaks in certain regions.

Vulnerability Analysis

Extreme cold is a common occurrence in Weber County. Vulnerable assets are considered below.

[115] National Centers for Environmental information, "Storm Events Database." https://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29+Cold%2FWind+Chill&eventType=%28Z%29+Extreme+Cold%2FWind+Chill&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=2016&endDate_mm=01&endDate_dd=31&endDate_yyyy=2024&county=WEBER%3A57&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=49%2CUTAH

Table 73: Extreme Cold Vulnerability Assessment

Plan Participant Name	Asset Type	Description
Weber County	Structures	Extreme cold may burst pipes which could impact any type of structure in the County.
	Systems	Water delivery and wastewater infrastructure are threatened by extreme cold events, as well as secondary failures of electrical services due to frozen lines.
	Populations	These events severely impact service/supply interruptions to homebound individuals reliant on home health supplies such as oxygen due to road closures and loss of power. At-risk populations including low-income populations are more likely to experience the impacts of extreme cold.
	Other	Economic losses, including from tourism, and agricultural losses may also be realized.
Farr West	Structures	Possible structural impacts from burst pipes.
	Systems	May impact water pipes and water infrastructure.
	Populations	Possible human health impacts, possibly death.
	Other	May have impact on farming, livestock/ranching, and local wildlife and environment.
Harrisville	Structures	The city has older homes built before modern insulation, making it more challenging to maintain their temperatures. Burst pipes and heating would be the main concern.
	Systems	Same as County
	Populations	A large senior population in Harrisville has lived in their homes since they were built. These older homes are less well-equipped to protect people from extreme cold, putting this population at risk.
	Other	Same as County
Hooper	Structures	Burst pipes, concerns with sufficient heating to keep homes habitable would be the main vulnerability to structures.

Plan Participant Name	Asset Type	Description
		Public works building and city office are at risk if heat is unavailable.
	Systems	Same as County. Energy supplies could be impacted.
	Populations	Same as County
	Other	Potential disruption or delay of governmental services due to loss of natural gas or other power which can affect public works buildings and city offices.
Huntsville	Structures	Pipes to buildings could freeze.
	Systems	Same as County
	Populations	Residents may be unable to keep warm.
	Other	None
North Ogden	Structures	Same as County
	Systems	Same as County
	Populations	The elderly and youth are most at risk.
	Other	None
Ogden	Structures	Same as County
	Systems	Same as County
	Populations	Homeless and low-income populations will be affected.
	Other	None
Pleasant View	Structures	Same as County
	Systems	Same as County
	Populations	Elderly and low-income residents are at risk.

Plan Participant Name	Asset Type	Description
	Other	None
Riverdale	Structures	Same as County
	Systems	Same as County
	Populations	Entire population could be at risk, particularly the homeless and elderly.
	Other	None
South Ogden	Structures	Older homes, particularly those without modern insulation, are less energy efficient and more susceptible to heat loss during extreme cold events.
	Systems	Same as County
	Populations	Elderly residents may face increased risk of hypothermia and other cold-related illnesses.
	Other	None
Uintah	Structures	Homes may have pipes frozen causing damage.
	Systems	Water systems may be damaged.
	Populations	Elderly residents may face increased risk of hypothermia and other cold-related illnesses.
	Other	None
Washington Terrace	Structures	Homes may have frozen pipes and laterals.
	Systems	Water systems may be damaged.
	Populations	Same as County
	Other	None

Plan Participant Name	Asset Type	Description
West Haven	Structures	Water line freezes are a concern
	Systems	Entire city could be affected if water lines and power grid are disrupted.
	Populations	Safety of all residents is a concern.
	Other	None
Roy Water Conservancy District	Structures	Could be affected by frozen pipes.
	Systems	Water system including pipes are at risk.
	Population	None
	Other	None
Taylor West Weber Water District	Structures	Could be affected by frozen pipes.
	Systems	Freezing pipes are at risk.
	Population	None
	Other	None
Ogden School District	Structures	Same as County
	Systems	Same as County
	Populations	Employees and students may be affected.
	Other	None
Weber Morgan Health Department	Structures	Same as County

Plan Participant Name	Asset Type	Description
	Systems	Same as County
	Populations	None
	Other	
Weber School District	Structures	None
	Systems	School operations could be disrupted if heating systems fail.
	Populations	Employees and students may be affected.
	Other	None
West Warren-Warren Water Improvement District	Structures	Pipes could freeze in district building and damage equipment inside.
	Systems	Water pumps, pipes, and water meters could freeze and rupture.
	Populations	Residents could be affected by lack of water service or flooding from burst pipes.
	Other	None
North View Fire District	Structures	Possible damage from frozen water lines.
	Systems	Roads, water lines, and other infrastructure could be damaged.
	Populations	Elderly and low-income residents are a concern. District employees could be affected.
	Other	None
Weber Fire District	Structures	Same as County

Plan Participant Name	Asset Type	Description
	Systems	Countywide impact, particularly in canyons where cold is accentuated by wind and ice.
	Populations	Health risks to those exposed to extreme temperatures. Possible risk to employees if exposed to extreme temperatures during response.
	Other	None

Impacts

Extreme cold weather can significantly impact Weber County and its jurisdictions. It can cause power outages, frozen pipes, and hazardous driving conditions. The cold can also lead to health issues, especially for the elderly and those with pre-existing medical conditions. Moreover, extreme cold weather can adversely affect the economy, as businesses may have to close, and people might miss work or school. Weber County and its jurisdictions are susceptible to the effects of extreme cold, especially during the winter months. January, usually the coldest month, has an average low temperature of around 22°F. However, temperatures can drop below this average, particularly during Arctic air outbreaks. Prolonged exposure to extreme cold can lead to hypothermia, frostbite, and other dangerous conditions.

Although extreme cold and cold waves can significantly impact a community, the risk to Weber County is relatively low, as shown in Figure 79, based on the National Risk Index.

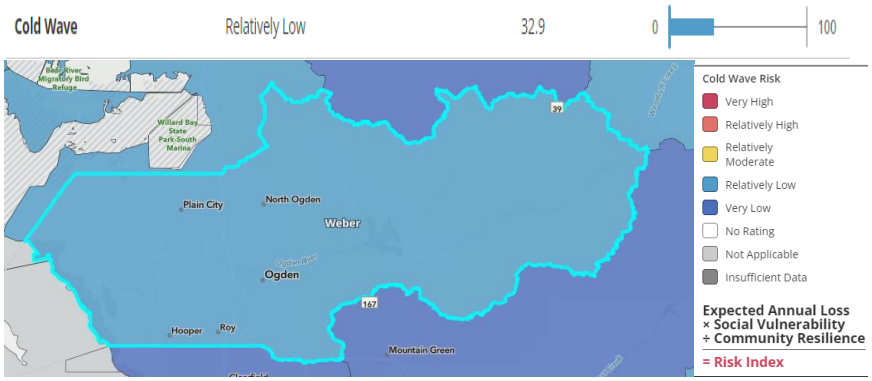


Figure 79: Risk Rating Cold Wave, Weber County[116]

Table 74 presents detailed data on a project's risk exposure values and associated costs in the event of extreme cold. This information is essential for assessing a project's financial impact and risk mitigation strategies.

[116] FEMA, "National Risk Index." https://hazards.fema.gov/nri/map#

Table 74: Risk Exposure Value, Weber County[117]

Building Value	Population Equivalence	Population	Agricul-ture	Total
$136,282,7017	$2,206,7588,295	1902.38	4156196	$23,434,571,508

Table 75 and Table 76 present the estimated annual financial losses to buildings and population in Weber County caused by extreme cold. These data provide an overview of the projected economic impact of extreme cold on the area, considering structural damage to buildings and potential effects on the population.

Table 75: Expected Annual Loss from Extreme Cold, Weber County[118]

Building Value	Population Equivalence	Population	Agricul-ture	Total
$231	$9,186	0	$720	$10,137

Table 76: Expected Annual Loss from Extreme Cold to Jurisdictions in Weber County[119]

Jurisdiction	Expected Annual Loss	Exposure Loss	Vulnerability Score
Farr West	$0	$0	N/A
Harrisville	$0	$0	N/A
Hooper	$0	$0	N/A
Huntsville	$3.5K	$8.9B	Relatively Low
Marriott–Slaterville	$0	$0	N/A
North Ogden	$0	$0	N/A
Ogden	$0	$0	N/A
Plain City	$0	$0	N/A
Pleasant View	$0	$0	N/A
Riverdale	$0	$0	N/A
Roy	$0	$0	N/A
South Ogden	$0	$0	N/A

[117] FEMA, "National Risk Index Weber County Utah." https://hazards.fema.gov/nri/report/viewer?dataLOD=Counties&dataIDs=C49057#SectionExpectedAnnualLoss
[118] Ibid.
[119] Ibid.

Jurisdiction	Expected Annual Loss	Exposure Loss	Vulnerability Score
Uintah	$0	$0	N/A
Washington Terrace	$0	$0	N/A
West Haven	$0	$0	N/A

Table 77: Impacts of Extreme Cold by Jurisdiction

Plan Participant Name	Impacts
Weber County	Water delivery and wastewater infrastructure are significantly threatened by extreme cold events and the secondary failures of electrical services due to frozen lines. These events severely impact service/supply interruptions to homebound individuals reliant on home health supplies such as oxygen due to road closures and loss of power. As temperatures fall, older homes without modern insulation become less viable, pushing vulnerable groups, like the elderly and low-income families, to seek energy-efficient housing potentially elsewhere. Disruptions in agricultural practices lead to shifts in land use and potential urban migration to warmer areas. The severity of cold events highlights the need for improved infrastructure and adaptive strategies to protect communities and ecosystems amid climate uncertainty.
Farr West City	Extreme cold can have a significant cost to human sustainment, as well as the local environment and potentially to structural buildings and dwellings. The cost is difficult to estimate as it could be variable from death down to burst pipes. The effect upon farming, agricultural ranching and local wildlife is variable.
City of Harrisville	Pipes may burst due to extreme cold, which could damage structures. Heating homes is a priority. Heating challenges coupled with extreme cold, particularly for vulnerable populations like seniors, can result in injury or death.
City of Hooper	Heating homes is a priority as increased demand for natural gas and electricity can lead to higher energy costs. This can make it difficult for those with limited resources to stay warm. Extreme cold can lead to injury or death, particularly for these vulnerable populations.
City of Huntsville	The extreme cold could freeze pipes in all buildings, and residents might find it difficult to keep warm. Residents may be injured or killed due to extreme cold.
City of North Ogden	Extreme cold poses significant risks to both the elderly and youth. The elderly are particularly vulnerable to cold-related illnesses like hypothermia, especially in older homes that lack insulation. Young children also face risks due to their

Plan Participant Name	Impacts
	smaller body size. Both groups may struggle to access essential services during severe weather, especially if there are road closures or power outages. Additionally, the stress associated with extreme cold can negatively impact mental health.
City of Ogden	Extreme cold presents severe challenges for homeless individuals and low-income populations lacking adequate shelter. Without reliable heating, they face increased risks of hypothermia and frostbite, especially during severe weather. Many depend on overcrowded temporary shelters, and financial constraints prevent them from buying warm clothing or supplies. Heat and power loss can also worsen existing health issues, highlighting the need for communities to provide support during harsh cold spells.
City of Pleasant View	Extreme cold significantly impacts the elderly and low-income individuals, risking their health and safety. Older adults often struggle to regulate body temperature, increasing susceptibility to hypothermia. Many low-income homes lack proper insulation, leading to higher heating costs that force residents to choose between food and warmth. Power outages during extreme cold can also leave them without heat and essential health supplies, further jeopardizing their well-being.
City of Riverdale	Extreme cold significantly affects vulnerable groups like the elderly, low-income households, and the homeless. Older homes without proper insulation increase the risk of hypothermia and cold-related illnesses. People dependent on medical supplies, like oxygen, face severe challenges during road closures and power outages.
City of South Ogden	Older homes, particularly those without modern insulation, are less energy efficient and more susceptible to heat loss during extreme cold events. If their homes cannot maintain adequate warmth, elderly residents may face an increased risk of hypothermia and other cold-related illnesses.
City of Uintah	Frozen pipes may damage homes and structure. Water systems may be damaged, and services disrupted. People, particularly elderly residents who are more vulnerable to extreme cold, may experience cold-related illnesses.
City of Washington Terrace	Few areas are impacted by extreme cold. However, a few homes are susceptible to freezing water laterals. Extreme cold temperatures can significantly risk water laterals by causing the water inside pipes to freeze. As water freezes, it expands, which can crack or burst pipes, leading to costly repairs and service interruptions. Frozen water can also block flow, affecting access to a consistent water supply. Infrastructure elements like valves and meters may also

Plan Participant Name	Impacts
	suffer damage, complicating maintenance. Therefore, we communicate with the residents to take appropriate precautions to avoid pipe freezing.
City of West Haven	Extreme cold can severely impact a city and its infrastructure. Disruption of the power grid and water line freezes could disrupt or delay city services. Freezing temperatures may lead to burst pipes, causing service interruptions and costly damages. Increased heating demands can strain power grids, potentially resulting in outages. Water treatment facilities and pumping stations are also at risk, disrupting supply. People, especially vulnerable populations like the elderly, could be injured or killed.
Roy Water Conservancy District	District facilities could be damaged by frozen pipes. Water systems including pipes could be damaged. Disruptions could impact services to customers.
Taylor West Weber Water District	Freezing pipes and damage to structures due to frozen pipes might occur. Water systems like Taylor West Weber Water District could be impacted, reducing the district's ability to operate as normal.
Ogden School District	Facilities, employees, students, and residents in the boundary area could be injured or killed. Structures may be affected by frozen pipes. Maintaining appropriate heating is critical. Heating challenges coupled with extreme cold could impact the district's school activities.
Weber Morgan Health Department	Extreme cold could compromise heating system in buildings and result in frozen pipes. The department's ability to operate effectively could be negatively impacted by damage to structures and heating challenges coupled with extreme cold.
Weber School District	If heating systems fail during an extreme cold event, school operations could be affected. Schools may be closed, or school opening may be delayed. Staff and students may be impacted.
West Warren-Warren Water Improvement District	Water pumps could freeze and be damaged, then must be replaced, and water flow in the area would stop; pipes could freeze inside the district building and damage equipment inside. Individual water service meters can freeze and break and are costly to replace, and residents would be without water or have flooding.
North View Fire District	The district could experience frozen water lines, impacting structures and services. Frozen water lines could further disrupt or damage critical infrastructure including transportation and water systems and community lifelines. People, including the elderly and low-income populations could be impacted. The

Plan Participant Name	Impacts
	district may be called upon in a response situation, putting district staff at-risk from injury due to exposure.
Weber Fire District	Extreme cold may burst pipes, affecting structures and critical infrastructure including transportation and water systems. People in the district's service area could be injured or killed, especially vulnerable populations like the elderly, individuals with pre-existing medical conditions, and low-income populations. District staff may be injured during response efforts when exposed to extreme cold.

Changes in Development

Development efforts can have a significant impact on overall vulnerability to extreme cold. Urbanization and industrialization can create heat islands, where urban areas experience higher temperatures than surrounding rural areas. This can increase the vulnerability of urban populations to extreme cold events, as they may be less accustomed to low temperatures and have less access to resources, such as warm clothing and heating. In addition, changes in land use and deforestation can lead to changes in local climate patterns, potentially increasing the frequency or severity of cold weather events. There have been no significant extreme cold events since the previous plan; however, housing availability and increased homelessness have exposed a growing number of individuals vulnerable to the hazard of extreme cold.

Figure 80 displays projected areas of development in Weber County from 2023 to 2028.

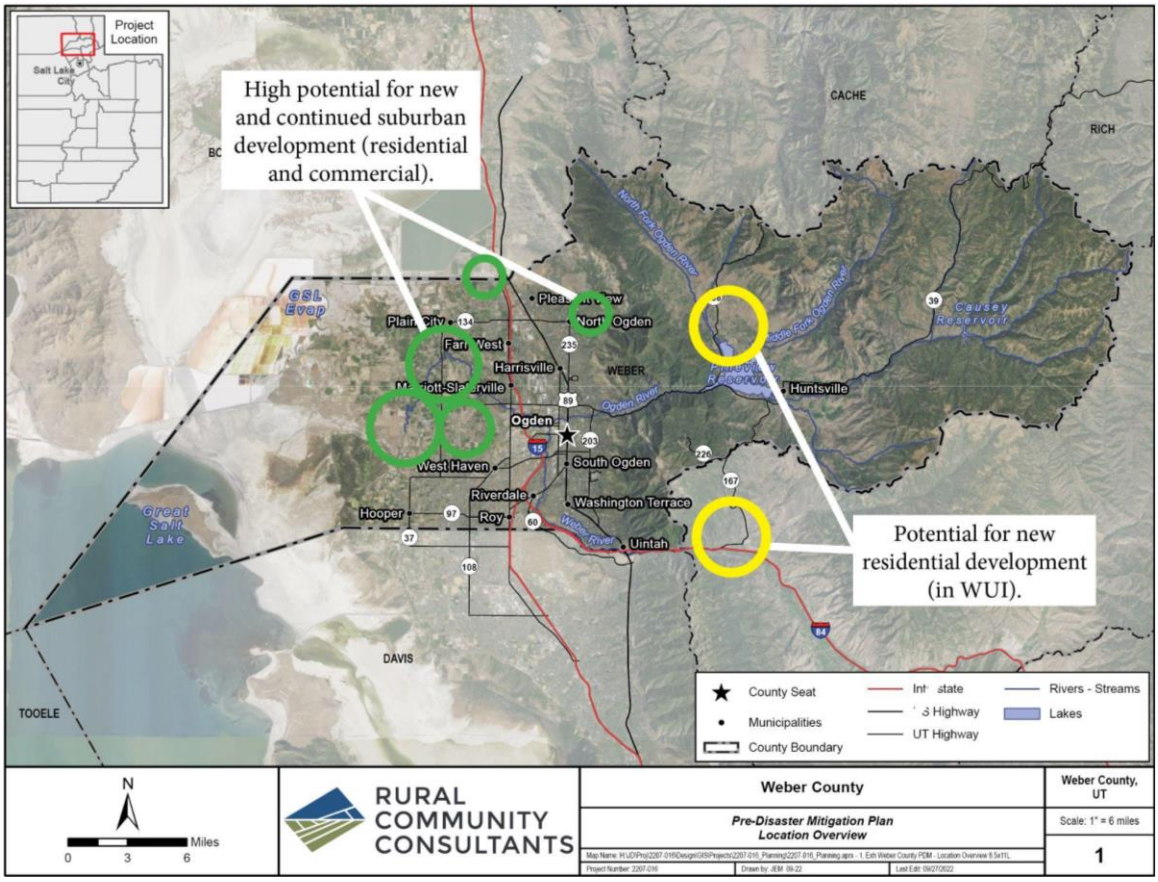


Figure 80: Projected Areas of Development 2023-2028 Weber County

Table 78 shows the projected populations for Weber County and its jurisdictions over a 40-year period, along with the expected increase or decrease in population. The formula used to calculate population percentages is as follows:

((New Population -Old Population)/Old Population) x 100%

Table 78: Estimated Population Projects, Weber County, 2020–2060[120]

Area	Estimated Population 2020[121]	Estimated Population 2030	Estimated Population 2040	Estimated Population 2050	Estimated Population 2060	Change 2020–2060
Weber County	262,218	300,477	349,009	398,699	449,053	71%
Farr West	7,692	7,238	8,163	9,479	11,593	51%
Harrisville	7,036	7,741	7,146	8,428	9,782	39%
Hooper	9,087	13,989	21,640	28,691	36,586	303%

[120] Utah Gov Open Data Catalog, "Weber County Census Projections 2010-2060." https://opendata.utah.gov/Government-and-Taxes/Weber-County-Census-Projections-2010-2060/cggy-vv82/data
[121] United States Census Bureau, "Quick Facts." https://www.census.gov/quickfacts/

Area	Estimated Population 2020[121]	Estimated Population 2030	Estimated Population 2040	Estimated Population 2050	Estimated Population 2060	Change 2020–2060
Huntsville Town	697[122]	727	688	698	692	-0.7%
North Ogden	20,916	25,351	36,923	43,802	106,934	411%
Ogden	87,321	100,123	102,059	105,457	106,934	23%
Pleasant View	11,083	11,876	15,626	18,860	22,337	102%
Riverdale	9343	9,365	9,694	9,544	9,409	0.7%
South Ogden	17,488	18,885	19,387	19,387	19,399	11%
Uintah	1,562[123]	1,851	1,749	2,072	2,415	55%
Washington Terrace	9,267	10,446	13,456	13,567	13,358	44%
West Haven	16,739	21,731	32,674	44,760	58,405	249%
Unincorporated	15,613	17,796	20,408	29,828	38,798	148%

Table 79: Extreme Cold Changes in Development Summary

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Weber County	Increased	Weber County has increased vulnerability risk as the current housing availability crisis and rising numbers of habitual homeless have exposed a growing number of underserved individuals to this hazard.
Farr West	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from extreme cold.
Harrisville	Increased	The city has extreme temperatures. Many older homes were built before more modern insulation, which can pose a risk to those living in them, especially the elderly. New homes are being built to better standards and have more insulation to protect against extreme temperatures.
Hooper	Increased	Hooper has seen an increase in population growth.

[122] Data USA, "Huntsville, UT." https://datausa.io/profile/geo/huntsville-ut#:~:text=Between%202020%20and%202021%20the,%2C%20a%20%E2%88%926.14%25%20decrease.
[123] Data USA, "Uintah, UT." https://datausa.io/profile/geo/uintah-ut.

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Huntsville	Decreased	The city has decreased risk because of more individual emergency preparedness.
North Ogden	Stayed the Same	The population demographic has stayed constant.
Ogden	Increased	A higher population could be affected by cold weather issues, including the loss of power and breaks in water supply pipes because of cold weather and age.
Pleasant View	Stayed the Same	The population demographic has stayed constant.
Riverdale	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from extreme cold.
South Ogden	Decreased	Planning and tabletop exercises specifically for extreme cold events have helped to ensure readiness for severe winter weather conditions.
Uintah	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from extreme cold.
Washington Terrace	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from extreme cold.
West Haven	Stayed the Same	Since the last plan update, vulnerability has stayed the same due to no changes in development.
Ogden School District	Decreased	There is a decreased risk because systems and generators have been added to some facilities.
Roy Water Conservancy District	Increased	Vulnerability increased since last plan update due to impacts of climate change.
Taylor West Weber Water District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from extreme cold.
Weber-Morgan Health Department	Stayed the Same	No changes to development since last plan update.
Weber School District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from extreme cold.

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
West Warren-Warren WID	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from extreme cold.
Weber Fire District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from extreme cold.
North View Fire District	Stayed the Same	The population demographic has stayed constant.

SECONDARY HAZARDS

Extreme cold can have various secondary or cascading effects on Weber County. These include disruption to transportation, power outages, water supply issues, increased risk of hypothermia and frostbite, damage to buildings, and closures of schools and businesses. Extreme cold can also negatively impact agriculture and livestock, reducing crop yields and creating animal losses.

Extreme Heat

Extremely high temperatures can severely impact human health and infrastructure. Heat waves can lead to primary and secondary effects, such as power outages and burst pipes, which can significantly threaten communities. The definition of "extreme heat" can vary from region to region, depending on how well the local population is acclimatized and prepared for such events. Therefore, it is essential to understand local conditions and prepare accordingly to mitigate the risks and impacts of extreme temperatures.

Extreme heat occurs when the weather is hotter and/or more humid than usual for a location at that time of year. According to FEMA, extreme heat occurs when temperatures above 90°F combine with humidity, significantly increasing the heat index for two to three consecutive days for most of the United States.[124] However, the United States Environmental Protection Agency defines excessive heat as "summertime weather that is substantially hotter and/or more humid than average for a location at that time of year,[125] while NOAA identifies excessive heat in Utah as a "maximum temperature of 100 ºF or higher."[126]

Understanding the impact of extreme heat is crucial for the well-being of our communities, as it is the leading cause of weather-related fatalities in the U.S.[127] People vulnerable to extreme heat include the elderly, young children, people with chronic illnesses, individuals with limited mobility, and those living in poverty. These groups are particularly vulnerable because they may have difficulty regulating their body temperature, have limited access to air conditioning or cooling centers, or face challenges accessing adequate hydration. In addition, certain medications and health conditions can make individuals more susceptible to heat-related illnesses.

Climate change, urbanization, and the heat island effect are factors that exacerbate extreme heat events. Climate change leads to more frequent and intense heat waves. Urbanization and the heat island effect can cause higher temperatures in urban areas because of the concentration of buildings, asphalt, and other heat-absorbing infrastructure. These factors increase the severity of extreme heat events and their impact on vulnerable populations.

Monitoring the heat index, which combines air temperature and humidity to measure how hot it feels to the human body, is essential in hot and humid climates. High humidity levels can significantly impact the human body. When the air is humid, the body's ability to cool itself by evaporating sweat is reduced, which can lead to feelings of discomfort, overheating, and even heat exhaustion. In addition, high humidity can exacerbate respiratory conditions, such as asthma, and make it harder for the body to cool down,

[124] FEMA, "Extreme Heat." https://community.fema.gov/ProtectiveActions/s/article/Extreme-Heat#:~:text=In%20most%20of%20the%20United,on%20the%20hazard's%20Information%20Sheet.
[125] United States Environmental Protection Agency, "Excessive Heat Events Guidebook." https://www.epa.gov/sites/default/files/2016-03/documents/eheguide_final.pdf
[126] National Oceanic and Atmospheric Administration, "NOAA National Centers for Environmental Information State Climate Summaries 2022 Utah." https://statesummaries.ncics.org/chapter/ut/
[127] United States Environmental Protection Agency, "Climate Change Indicators: Heat-Related Deaths." https://www.epa.gov/climate-indicators/climate-change-indicators-heat-related-deaths#:~:text=Heat%20is%20the%20leading%20weather,heat%2Devents%2Dguidebook).

potentially leading to heat-related illnesses. It is important to stay hydrated and seek cooler environments to mitigate the effects of high humidity on the body.

High humidity can significantly impact both animals and crops. High humidity can impede the ability of animals to regulate body temperature, leading to heat stress and potential heat-related illnesses. This can be particularly challenging for animals with thick fur or feathers. In addition, high humidity can create favorable conditions for the growth of certain molds and fungi, which can affect the health of animals and contaminate feed and water sources.

High humidity can also create breeding grounds for various plant diseases, such as powdery mildew, downy mildew, and botrytis. These diseases can lead to reduced crop yields and lower-quality harvests. High humidity can also impact pollination, especially for crops that rely on wind or insect pollinators, affecting overall crop production. Furthermore, excessive moisture in the air can cause certain crops to be more susceptible to rot and fungal infections.[128]

Recognizing the potential impact of different temperatures on the body and the likelihood of heat disorders can promote the use of proactive measures to ensure individuals' safety during extreme heat periods.

The National Weather Service (NWS) has created a Heat Index (HI) to assess the risk of heat-related illnesses based on temperature and humidity levels (see Figure 81). These alerts are activated when the daytime heat index is expected to reach or exceed 105 ºF and the nighttime minimum HI is expected to be 80 ºF or higher for at least two consecutive days. The warning and advisory thresholds for each are currently the same throughout. Table 80 describes the effects of different temperatures on the body and Table 81 provides the warning and advisory thresholds established by NWS offices.

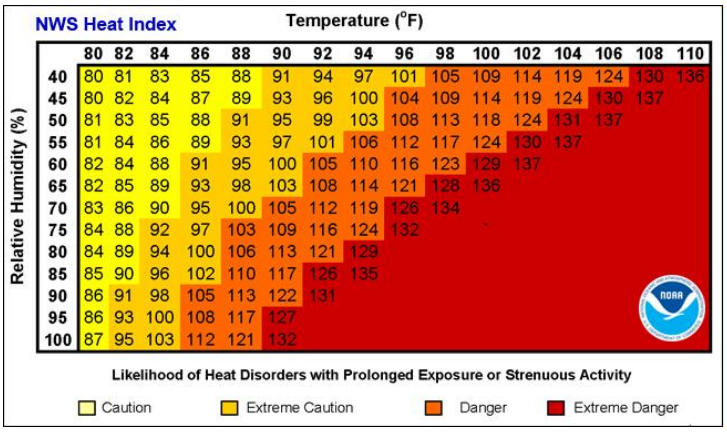


Figure 81: National Weather Service Heat Index Chart[129]

[128] Polygon, "The Importance of Climate Control for Plant Growth." https://www.polygongroup.com/en-US/blog/how-humidity-affects-the-growth-of-plants/#:~:text=When%20conditions%20are%20too%20humid,and%20thrive%20in%20moist%20soil.

[129] National Weather Service, "What is the Heat Index." https://www.weather.gov/ama/heatindex

Table 80: Classes of Heat and Their Effect on the Body[130]

Classification	Heat Index	Effect on the body
Caution	80°F - 90°F	Fatigue possible with prolonged exposure and/or physical activity
Extreme Caution	90°F - 103°F	Heat stroke, heat cramps, or heat exhaustion possible with prolonged exposure and/or physical activity
Danger	103°F - 124°F	Heat cramps or heat exhaustion likely, and heat stroke possible with prolonged exposure and/or physical activity
Extreme Danger	125°F or higher	Heat stroke highly likely

Table 81: NWS Warning and Advisory Thresholds for Extreme Heat[131]

Warning/Advisory Type	Description
Excessive Heat Warning	**Heat indexes are forecasted to reach or exceed 105 ºF for at least two consecutive hours. The warning is issued within 24 hours of the event.**
Excessive Heat Advisory	**Heat indexes are forecasted to reach 95–99 ºF for at least two consecutive days or 100–104 ºF for any amount of time.**

The Wet Bulb Globe Temperature (WBGT) Scale, in Figure 82, measures the heat stress in direct sunlight, incorporating temperature, humidity, wind speed, sun angle, and cloud cover (solar radiation). This differs from the heat index, which considers only temperature and humidity. The WBGT is the preferred metric to use for activities performed in direct sunlight. The WBGT has been adopted to manage workloads in direct sunlight by the Occupational Safety and Health Administration (OSHA), military agencies, various sports associations (especially high school sports), and some industries where most labor is performed outdoors.

Unacclimated and Acclimated Work/Rest and Water Intake Chart

Heat Risk Category		Wet Bulb Globe Temp	Light Work Work/Rest	Light Work Water Intake (quart/hr)	Moderate Work Work/Rest	Moderate Work Water Intake (quart/hr)	Heavy Work Work/Rest	Heavy Work Water Intake (quart/hr)
No Risk	Unacclimated	78 – 79.9	50/10 min	½	40/20 min	¾	30/30 min	¾
	Acclimated	78 – 79.9	continuous	½	continuous	¾	50/10 min	¾
Low	Unacclimated	80 – 84.9	40/20 min	½	30/30 min	¾	20/40 min	1
	Acclimated	80 – 84.9	continuous	½	50/10 min	¾	40/20 min	1
Moderate	Unacclimated	85 – 87.9	30/30 min	¾	20/40 min	¾	10/50 min	1
	Acclimated	85 – 87.9	continuous	¾	40/20 min	¾	30/30 min	1
High	Unacclimated	88 – 90	20/40 min	¾	10/50 min	¾	avoid	1
	Acclimated	88 – 90	continuous	¾	30/30 min	¾	20/40 min	1
Extreme	Unacclimated	> 90	10/50 min	1	avoid	1	avoid	1
	Acclimated	> 90	50/10 min	1	20/40 min	1	10/50 min	1

Adapted from: 1) USGS Survey Manual, Management of Occupational Heat Stress, Chapter 45, Appendix A. 2) Manual of Naval Preventive Medicine, Chapter 3: Prevention of Heat and Cold Stress Injuries. 3) OSHA Technical Manual Section III: Chapter 4 Heat Stress. 4) National Weather Service Tulsa Forecast Office, Wet Bulb Globe Temperature.

Figure 82: Wet Bulb Globe Temperature Scale for Exposure to Extreme Heat[132]

[130] Ibid.
[131] National Weather Service, "Heat Watch vs. Warning." https://www.weather.gov/safety/heat-ww
[132] IOP Conference Series: Earth and Environmental Science, "The thermal environment effect on the comfort of electronic factory worker." https://iopscience.iop.org/article/10.1088/1755-1315/126/1/012143/pdf

Location

Excessive heat can occur across the United States, from the scorching deserts of the Southwest to the muggy cities of the East Coast. During the summer, many regions experience high temperatures and sweltering humidity levels, which can pose health risks to people and animals. Weber County can experience high temperatures and low humidity levels during the summer. While the heat in Weber County may not be as extreme as some of the deserts of the Southwest, it is still important for residents to take precautions during periods of excessive heat. Figure 83 shows the average number of days Above 90°F in the County for a 30-year period.

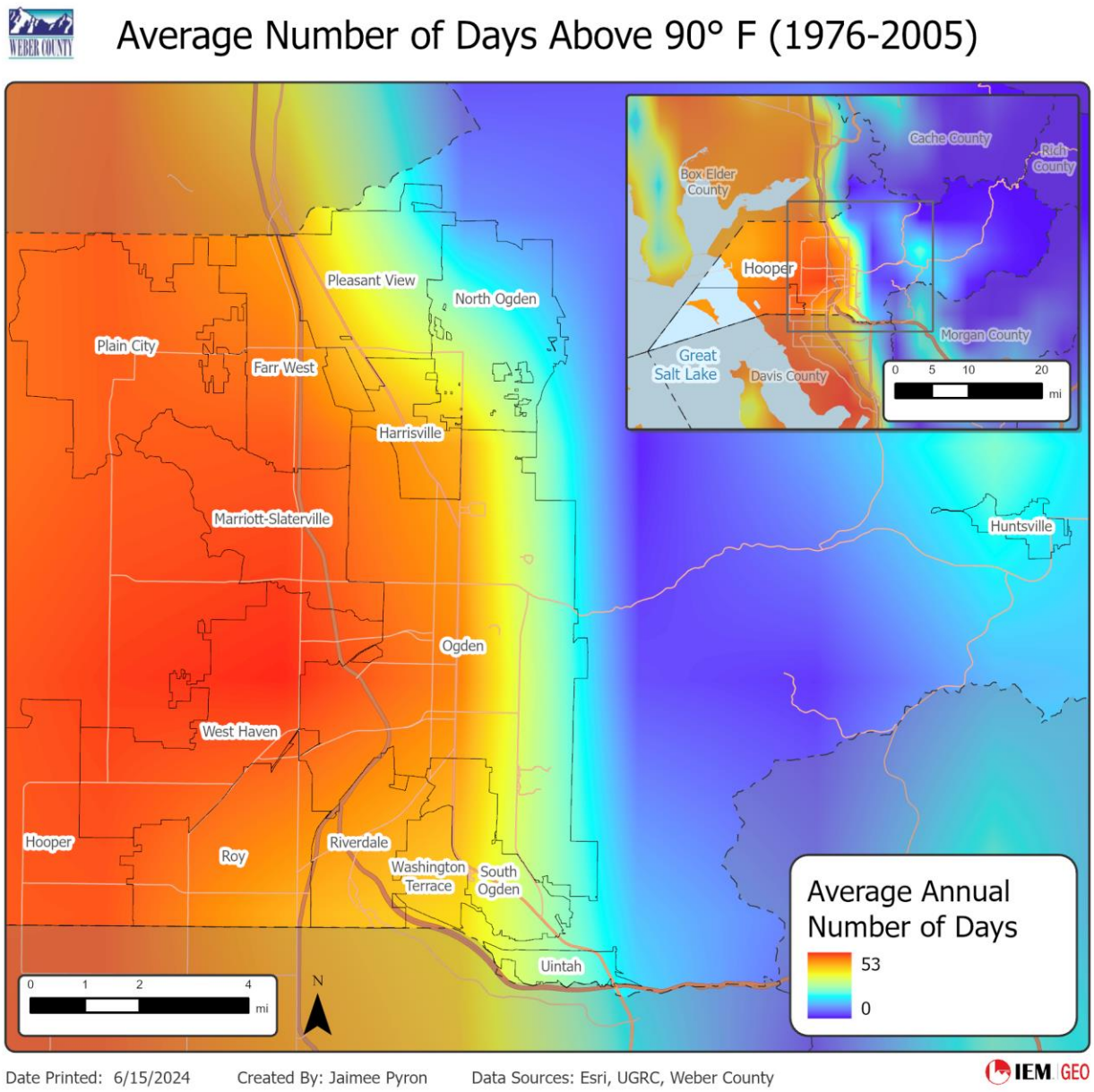


Figure 83: Average Number of Days Above 90°F, Weber County, 1976–2005

Weber County has a relatively high risk of heat. This is because "feels like" temperatures are increasing and 97% of homes in Weber County have a moderate heat factor. The hottest locations in Weber County in July and August include Ogden, Riverdale, and Roy, which often have temperatures in the high 90s.

Magnitude/Extent

Extreme heat events can vary in magnitude and extent depending on geographical location, time of year, and event duration. They can range from mild to severe, and prolonged heat waves can significantly impact people and the environment. One way to measure the extent of extreme heat is through the NWS'

Heat Index. The Heat Index incorporates relative humidity into actual air temperature to develop an estimate of how hot it feels.

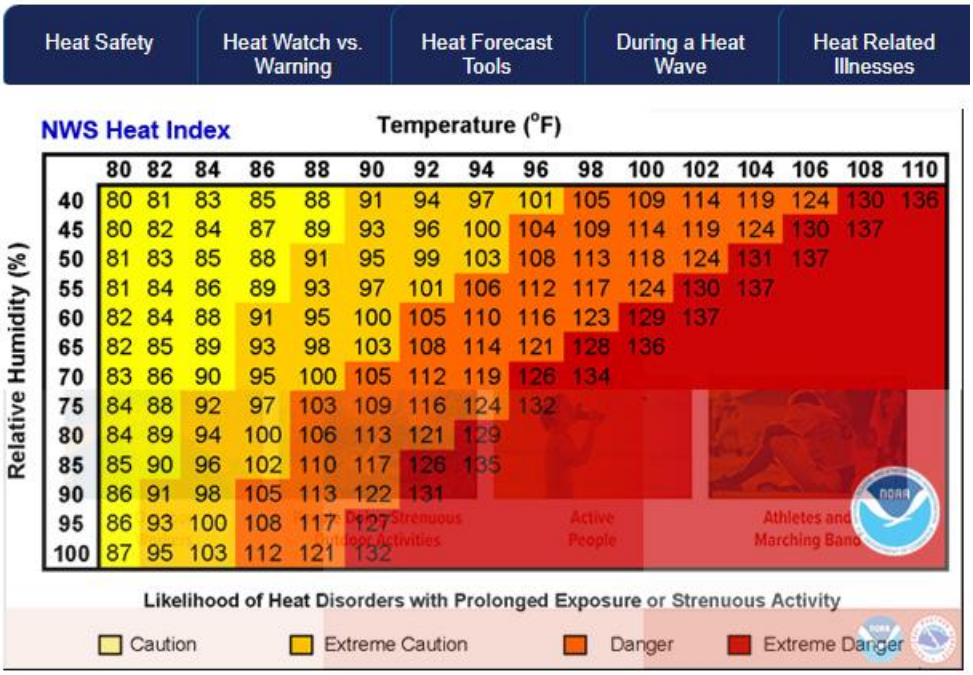


Figure 84: National Weather Service Heat Index

Typically, any time temperatures exceed the normal range for a particular location is considered an extreme heat event. The highest recorded temperature in Weber County is 106 degrees, with summer temperature regularly reaching up 91 degrees.

Such events can increase the risk of heat-related illnesses, especially for vulnerable populations, such as the elderly, children, and people with pre-existing medical conditions. However, a community's high resilience ranking implies that it has robust systems to support these populations during extreme heat. These may include cooling centers, outreach programs, and emergency response plans designed to address the impact of extreme heat.

The impacts of an extreme heat event can also be felt beyond the immediate area, as it can affect agricultural productivity, energy demand, and other sectors of the economy.

As the County's population continues to increase, so does its energy demand. In particular, when air-conditioning units and fans work overtime during excessive heat days, the energy demand can become overwhelming. This poses a great challenge for governments and energy providers to keep up with rising energy demand.

Livestock can also suffer from heat stress, resulting in decreased milk and egg production, decreased fertility, and even death. Moreover, high temperatures can damage infrastructure, such as roads, bridges, and buildings, particularly in areas that are not accustomed to such extreme heat.

As Weber County heads into the summer, it is important to know the risks associated with extreme heat events or heat waves. While the County has a relatively high risk of heat waves, it is important to note that it also has relatively low social vulnerability and very high community resilience, which means it is well equipped to handle the impact of these events. The maps in Figure 85 through Figure 99 identify the properties at risk of heat in each jurisdiction.[133] With each map are the numbers of properties at risk during specific heat factors.

Extreme heat can affect the entire county; however, Plain City and Central Water Sewer Improvement District are excluded due to minimal risks to their assets.

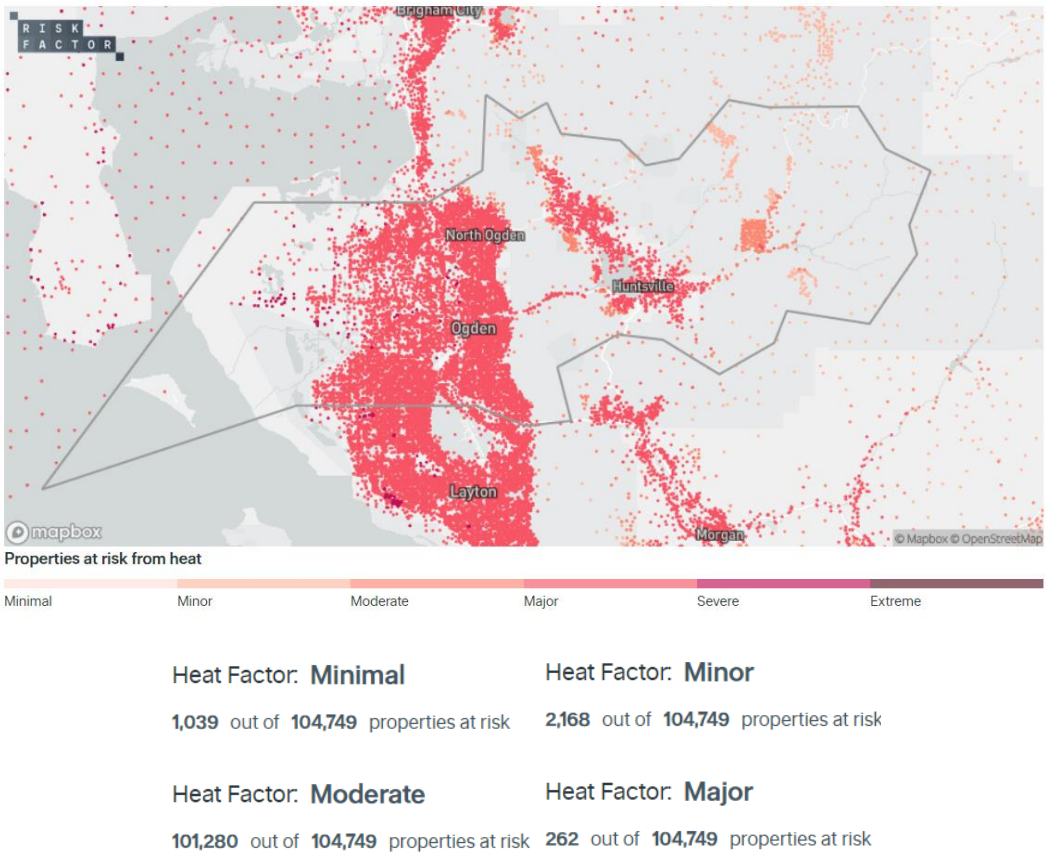


Figure 85: Properties at Risk from Heat, Weber County

[133] Risk Factor, "Does Weber County Have Heat Risk?" https://riskfactor.com/county/weber-county-ut/49057_fsid/heat

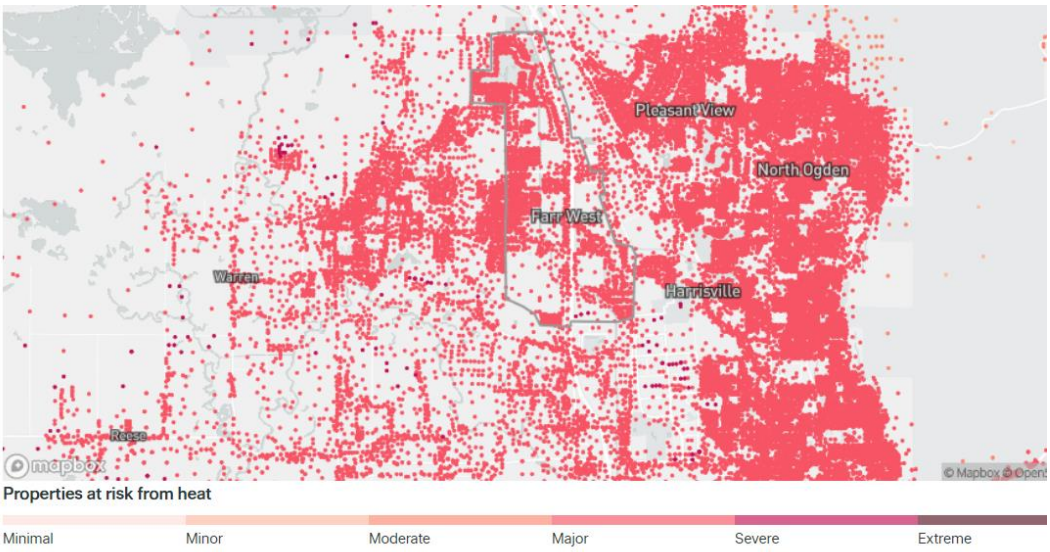


Figure 86: Properties at Risk from Heat, Farr West City

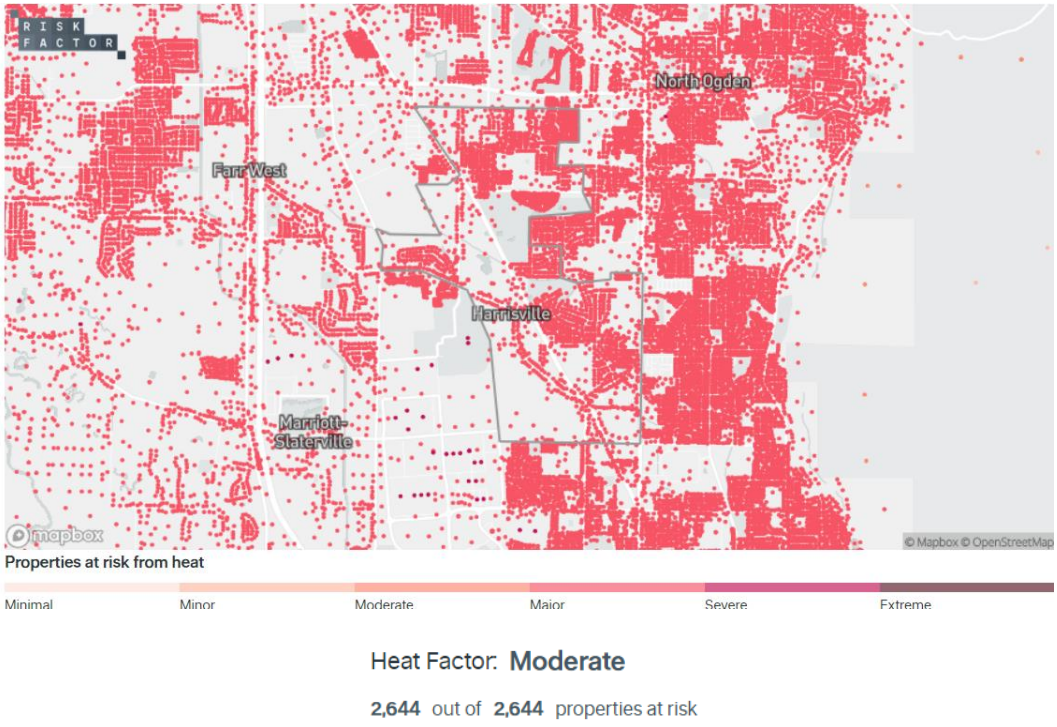


Figure 87: Properties at Risk from Heat, Harrisville

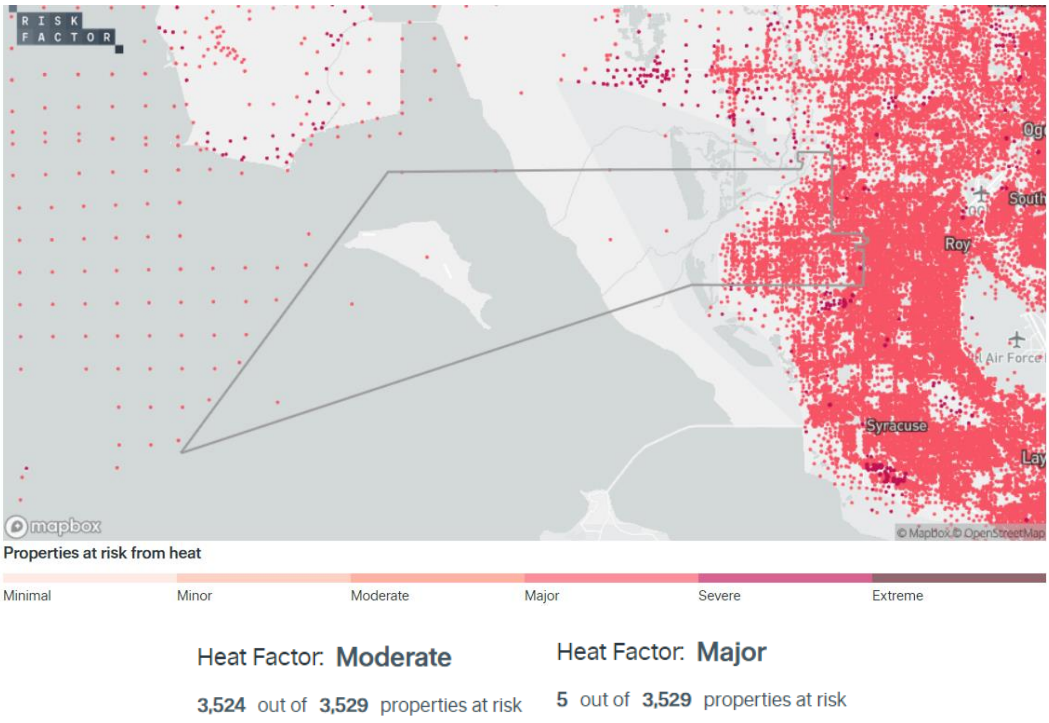


Figure 88: Properties at Risk from Heat, Hooper

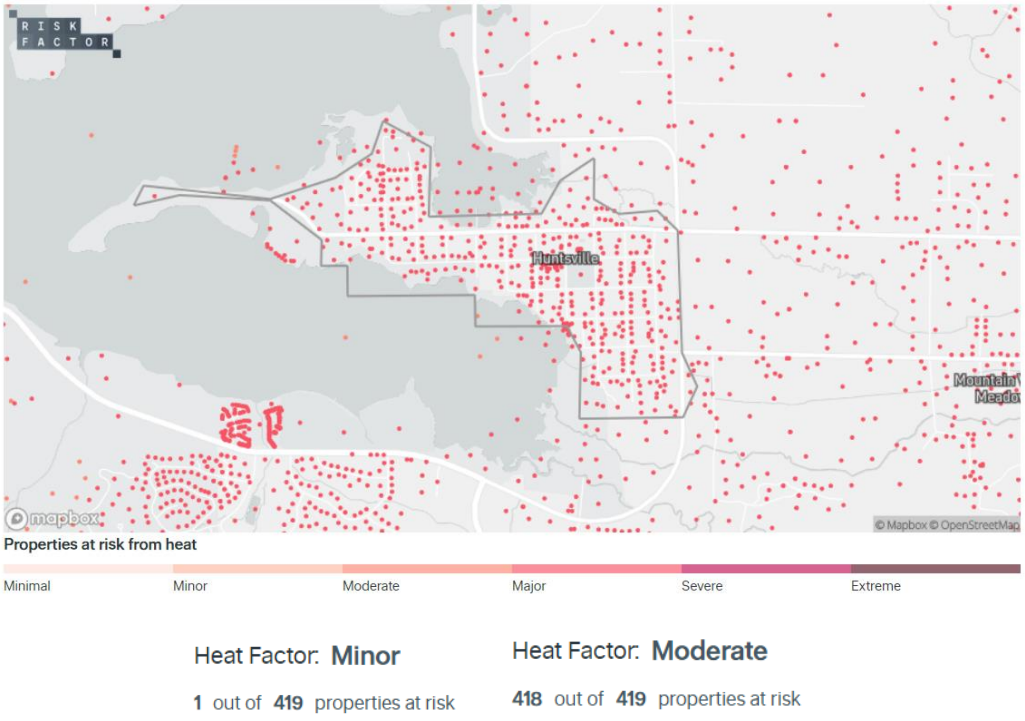


Figure 89: Properties at Risk from Heat, Huntsville

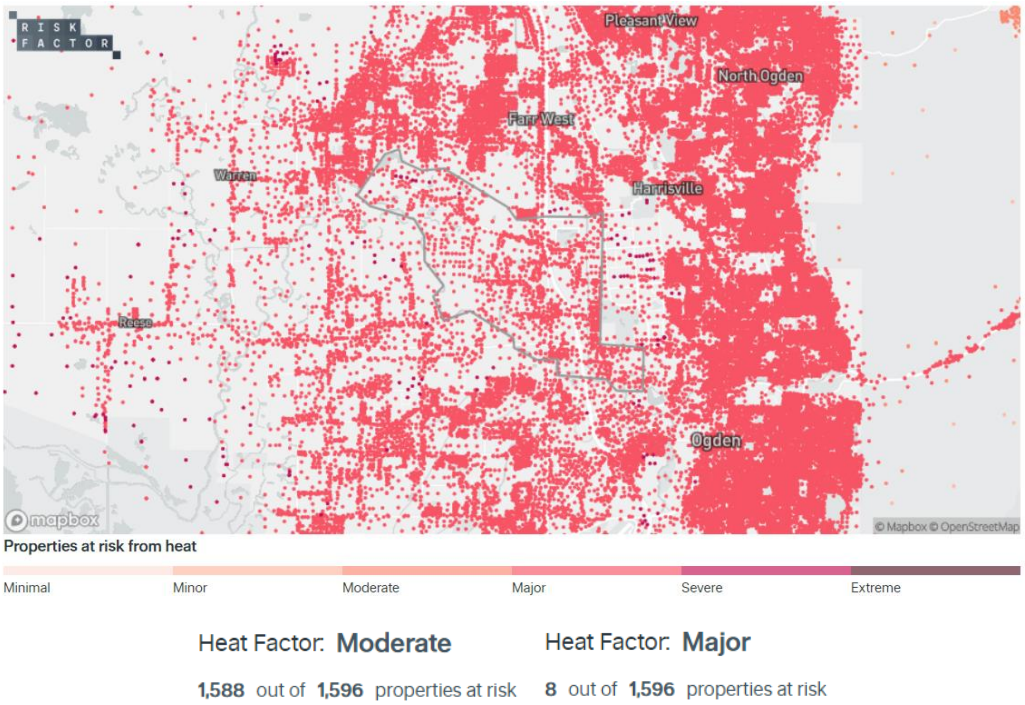


Figure 90: Properties at Risk from Heat, Marriott–Slaterville

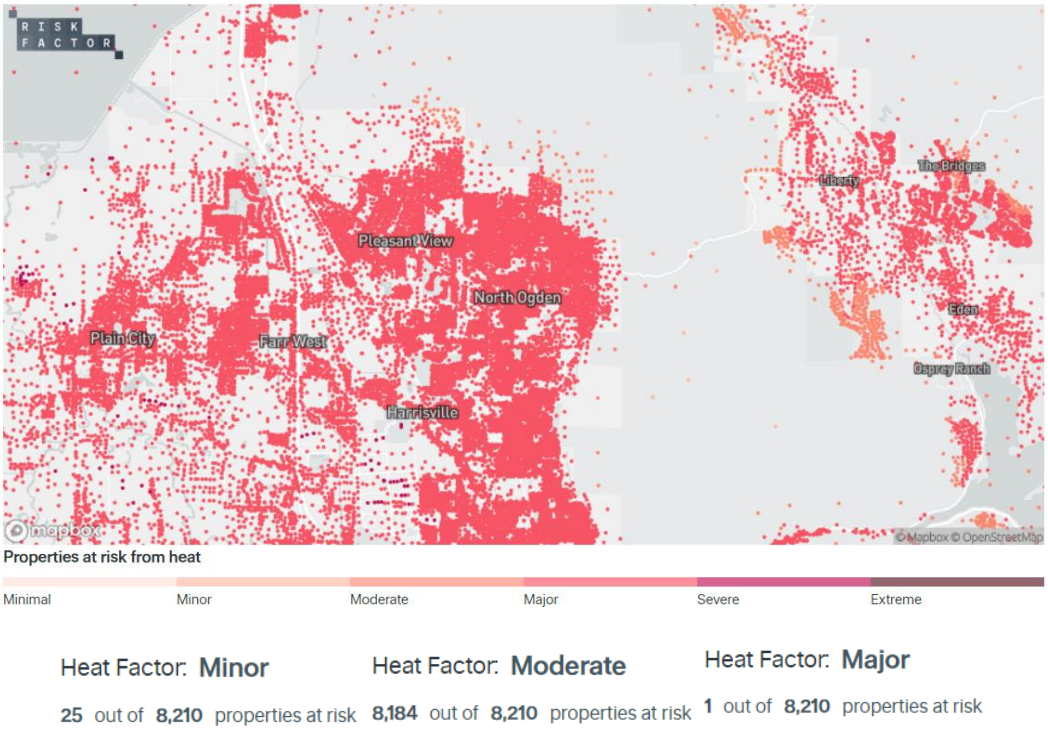


Figure 91: Properties at Risk from Heat, North Ogden

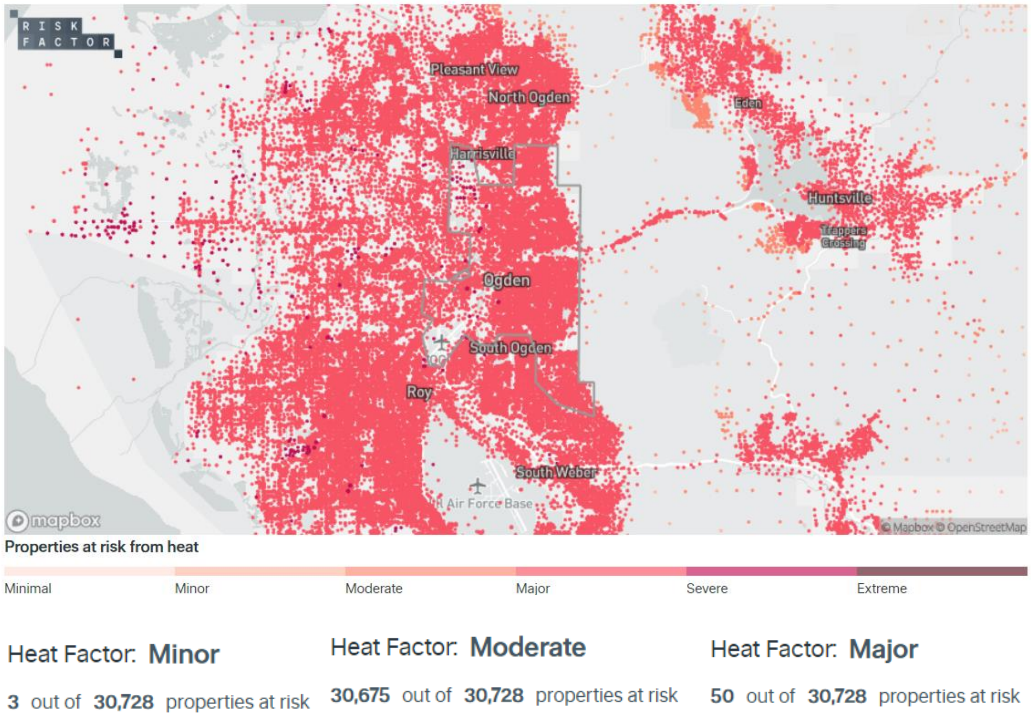


Figure 92: Properties at Risk from Heat, Ogden

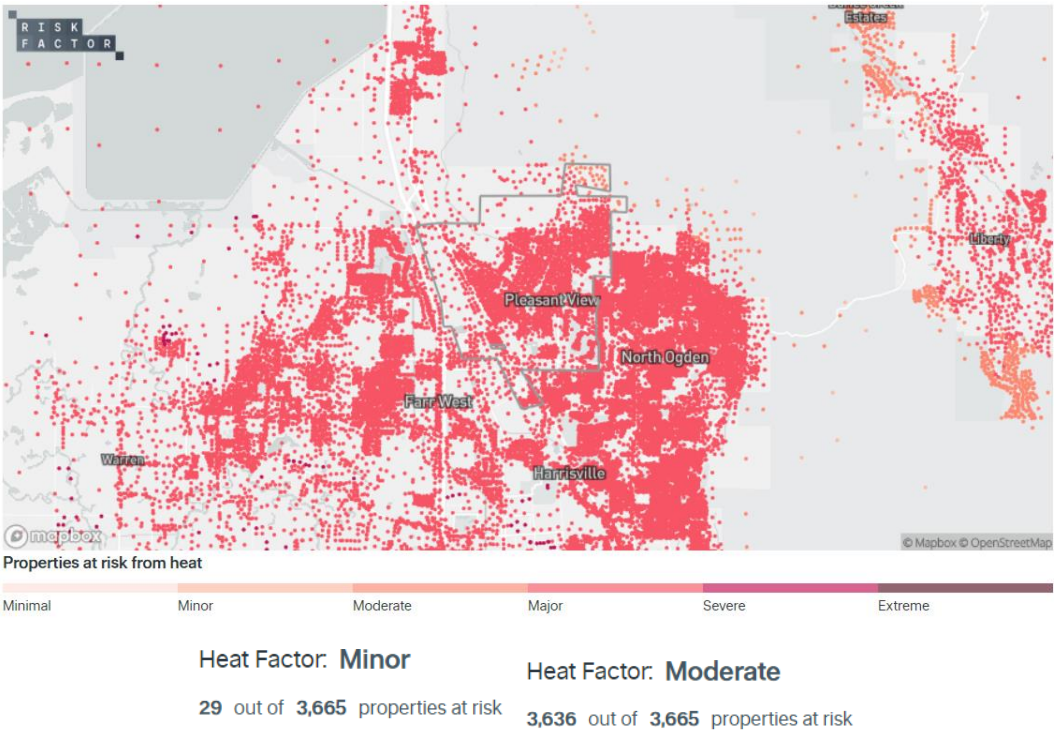


Figure 93: Properties at Risk from Heat, Pleasant View

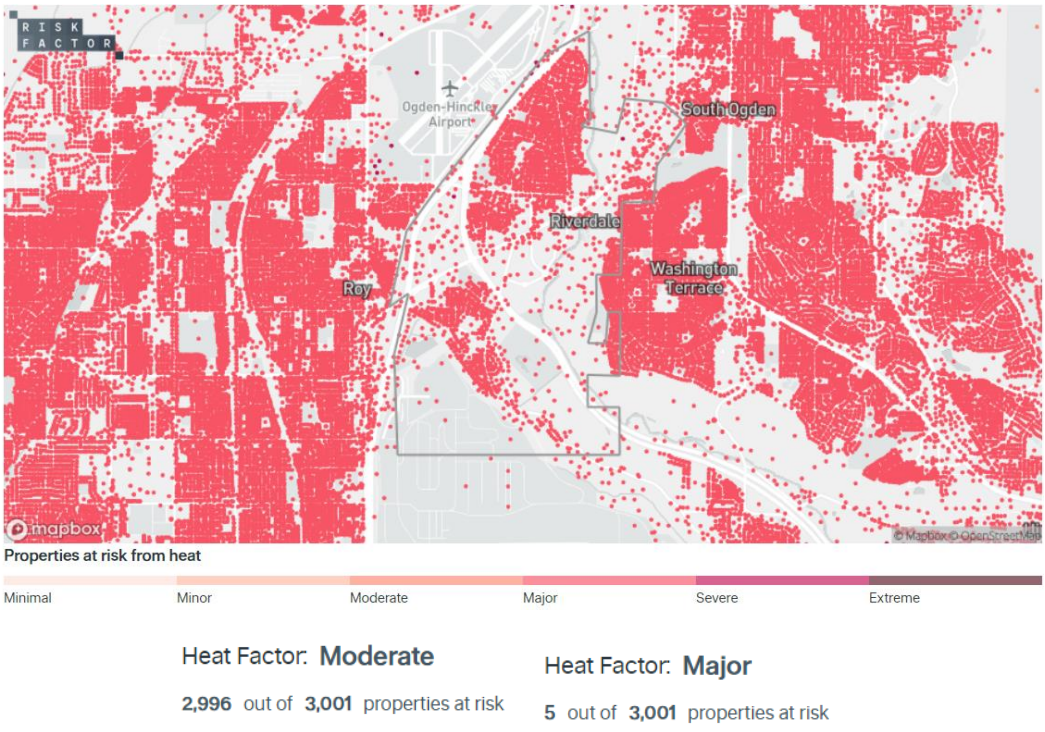


Figure 94: Properties at Risk from Heat, Riverdale

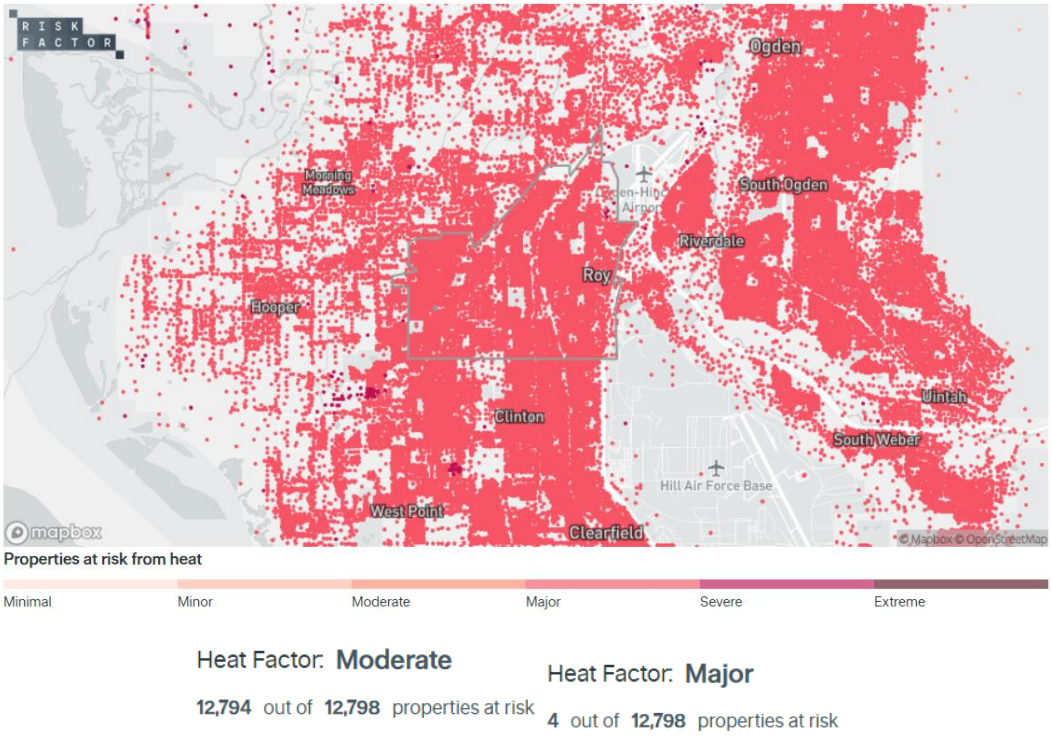


Figure 95: Properties at Risk from Heat, Roy

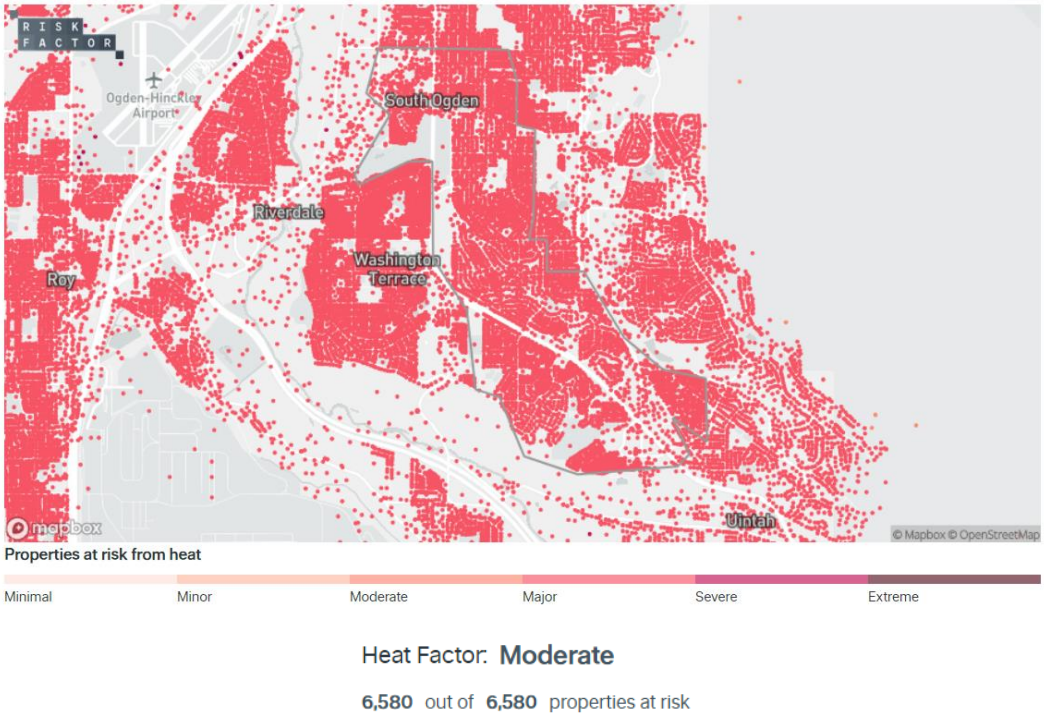


Figure 96: Properties at Risk from Heat, South Ogden

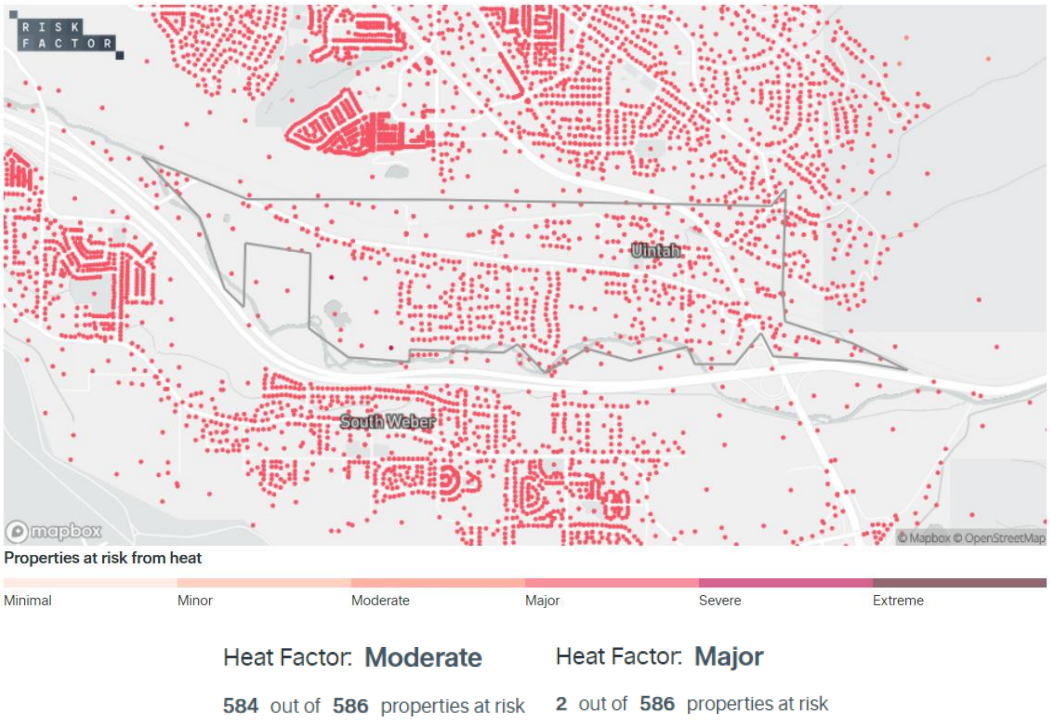


Figure 97: Properties at Risk from Heat, Uintah

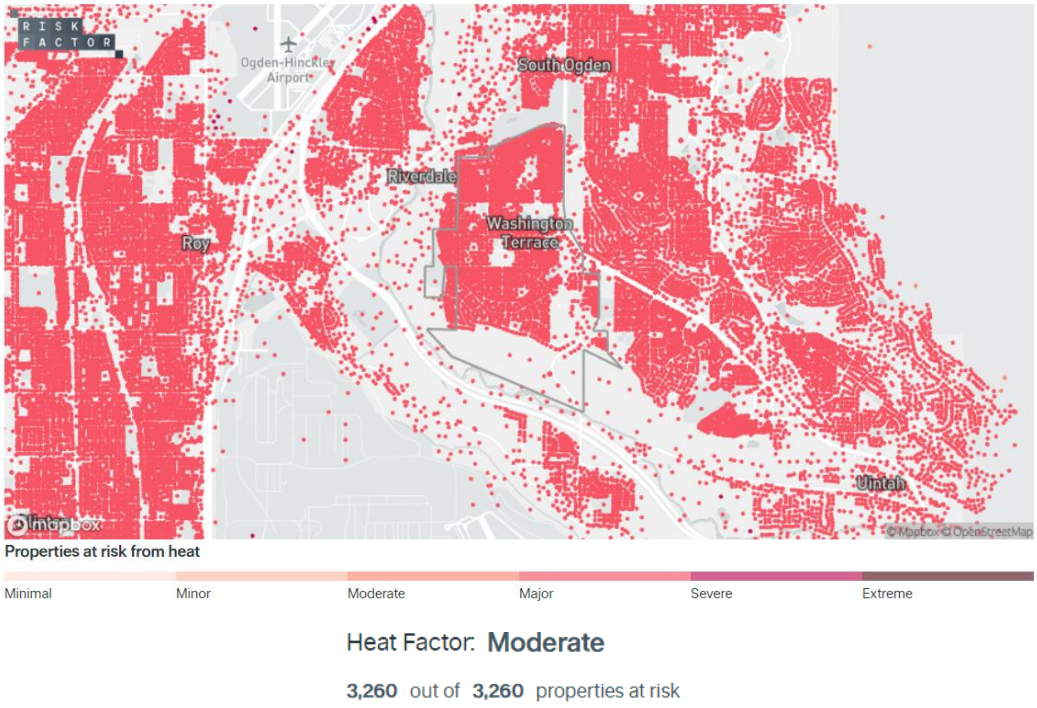


Figure 98: Properties at Risk from Heat, Washington Terrace

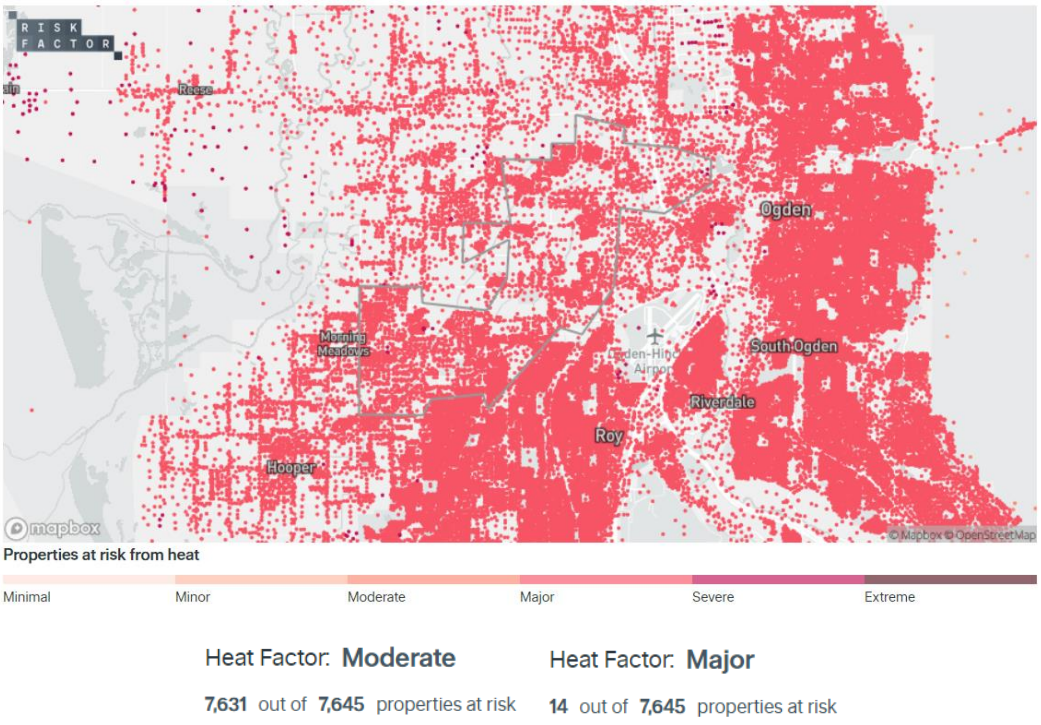


Figure 99: Properties at Risk from Heat, West Haven

Previous Occurrences

Based on the FEMA Disaster Declarations Database, Weber County has received no designation for extreme heat/heat wave disaster declarations since the last plan update.

According to NOAA's NCEI Storm Events Database, two heatwave events occurred in Weber County from January 2016 through January 2024. No event records included reports of deaths, injuries, property damage, or crop damage. Table 82 lists all events.

Table 82: Weber County Excessive Heat Events[134]

Location	Date
Northern Wasatch Front	06/03/2021
Northern Wasatch Front	06/14/2021

Probability of Future Occurrences

The historical frequency of two excessive heat events in in eight years, or a 25% annual percentage, this hazard is considered **Possible**. This frequency could change in the future, especially as temperatures rise.

Climate change is increasing the number of excessive heat days because of rising global temperatures, and Weber County is not exempt from future extreme heat events. Greenhouse gases trap more heat in the atmosphere, leading to a worldwide increase in temperatures and more frequent and intense heat waves. This temperature rise affects the frequency, intensity, and duration of heat waves, resulting in more excessive heat days.

With increasing average temperatures, dangerously hot days and heat waves may occur more often. Temperatures exceeding 90 ºF can be physically hazardous for high-risk individuals. When temperatures exceed 100 ºF, they can be dangerous for everyone.

A hot day in Weber County is any day above a "feels-like" temperature of 92 ºF. Weber County is expected to experience seven hot days in 2024. Due to a changing climate, Weber County may experience 18 days above 92 ºF in 30 years. Figure 100 and Figure 101show the potential increase in hot days in Weber County over the next 30 years.[135]

[134] National Centers for Environmental Information, "Storm Events Database." https://www.ncdc.noaa.gov/stormevents/eventdetails.jsp?id=968641

[135] Risk Factor, "Does Weber County Have Heat Risk?" https://riskfactor.com/county/weber-county-ut/49057_fsid/heat

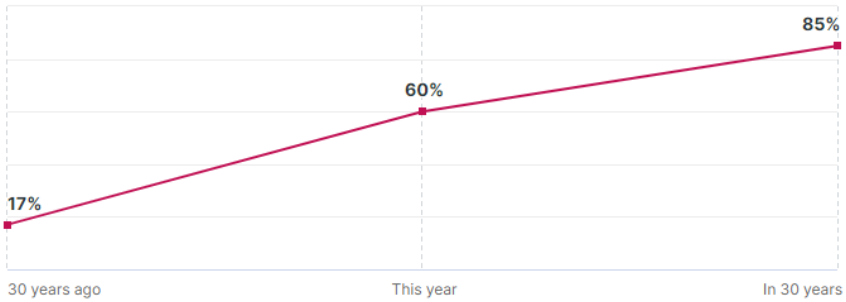


Figure 100: Likelihood of a Heatwave at Three Points in Time, Weber County

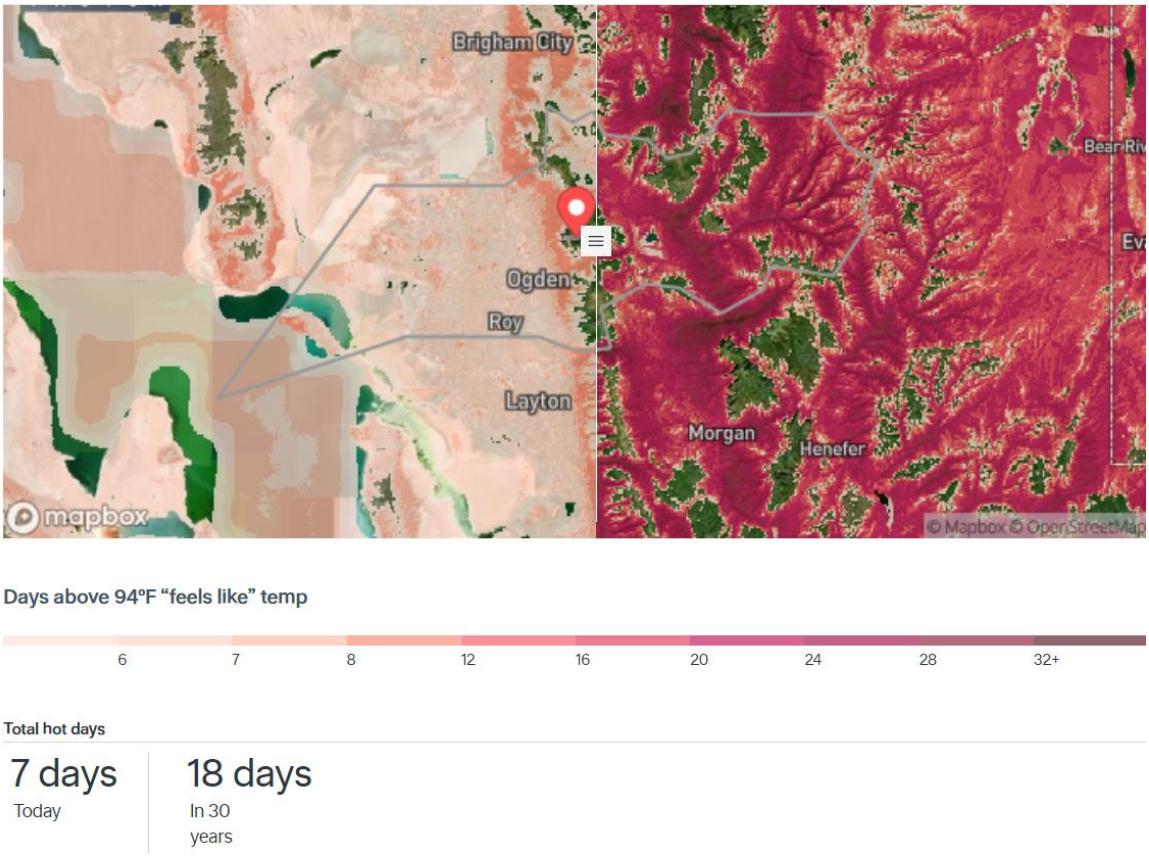


Figure 101: Probability of Future Heat Event Days, Weber County

Vulnerability Analysis

There is no defined geographic boundary for extreme heat events. While the entire Weber County planning area, including all participating jurisdictions, is exposed to extreme temperatures, existing buildings, infrastructure, and critical facilities are not likely to sustain significant damage. Therefore, any estimated property losses associated with extreme heat hazards are expected to be minimal across the area.

Several ski resorts in Weber County, including Powder Mountain, Nordic Valley, and Snowbasin, are vulnerable to extreme heat, and the impacts on them can be quite significant. High temperatures and prolonged heat waves can cause snow to melt quickly, reducing snowpack and shortening skiing seasons. This can also impact the surrounding communities economically, as fewer visitors may come to the area during the winter.

Extreme heat can also negatively impact the natural environment. It can stress plants and animals and increase the risk of wildfires. Heat can also impact the quality of the air and water, which can affect the health of both humans and wildlife.

Table 83: Extreme Heat Vulnerability Assessment

Plan Participant Name	Asset Type	Description
Weber County	Structures	Existing structures are not likely to experience notable damage.
	Systems	Energy systems may be overwhelmed due to high demand. Surging demand may create outages/interruptions.
	Populations	Electrical service interruptions during extreme heat may affect homebound individuals reliant on home health supplies such as oxygen are severely impacted by these events due to loss of power. Underserved populations without functioning cooling systems in their homes are also impacted creating potential, life threatening conditions due to extreme heat. Air quality can also be negatively impacted.
	Other	Economic activities, including tourism, are vulnerable to extreme heat, especially prolonged periods of extreme heat.
Farr West	Structures	Same as County
	Systems	Potential road damage/buckling that may limit transportation.
	Populations	Health risk for people across the community.
	Other	Potential impacts to farming, ranching, wildlife and environment.
Hooper	Structures	Same as County

Plan Participant Name	Asset Type	Description
	Systems	Same as County. Power loss could make it difficult to cool buildings and the public.
	Populations	Same as County
	Other	Same as County
Harrisville	Structures	Same as County
	Systems	Same as County
	Populations	The city has older homes built before modern insulation, making it more challenging to maintain their temperatures. It has a large senior population who have lived in their homes since they were built. These individuals are most susceptible to the effects of heat. Many older homes lack proper air conditioning, which can increase the temperature inside the house.
	Other	Same as County
Huntsville	Structures	Same as County
	Systems	Same as County
	Populations	The town has many structures built without AC. Newer homes traditionally have AC, but residents living in older homes without AC are more vulnerable to extreme heat.
	Other	Same as County
Marriott-Slaterville	Structures	Same as County
	Systems	Same as County
	Populations	Same as County
	Other	Same as County
North Ogden	Structures	Same as County

Plan Participant Name	Asset Type	Description
	Systems	Same as County
	Populations	The elderly and youth are most at risk.
	Other	Same as County
Ogden	Structures	Same as County
	Systems	Same as County
	Populations	Homeless and low-income populations will be affected.
	Other	Same as County
Pleasant View	Structures	Same as County
	Systems	Same as County
	Populations	Elderly and low-income residents are at risk.
	Other	Same as County
Riverdale	Structures	Same as County
	Systems	Same as County
	Populations	Entire population could be at risk, particularly the homeless and elderly.
	Other	Same as County
Roy	Structures	Same as County
	Systems	Same as County
	Populations	Roy's lower elevation and proximity to more urban communities may make it more at risk from extreme heat. Older adults and those with preexisting health conditions are particularly vulnerable. Like many nearby areas, the housing stock includes many older buildings built prior to the routine

Plan Participant Name	Asset Type	Description
		inclusion of efficient cooling systems. Residents without AC have a greater exposure to this hazard.
	Other	Same as County
South Ogden	Structures	Older homes may lack adequate air conditioning or insulation, making it difficult to maintain safe indoor temperatures during extreme heat events.
	Systems	Same as County
	Populations	The elderly are highly susceptible to heat-related illnesses such as heatstroke, heat exhaustion and dehydration.
	Other	Same as County
Uintah	Structures	Older homes may lack adequate air conditioning or insulation, making it difficult to maintain safe indoor temperatures during extreme heat events.
	Systems	Same as County
	Populations	The elderly are highly susceptible to heat-related illnesses such as heatstroke, heat exhaustion, and dehydration.
	Other	Same as County
Washington Terrace	Structures	Same as County
	Systems	Roadways can have heat-related damage.
	Populations	Some individuals are at risk for heat-related illness, especially those with pre-existing conditions.
	Other	Same as County
West Haven	Structures	Same as County
	Systems	Power grid to all parts of the city is a concern.

Plan Participant Name	Asset Type	Description
	Population	Health and hydration of citizens is a concern.
	Other	Same as County
Pineview Water System	Structures	Same as County
	Systems	Prolonged extreme heat may lead to increased water use and a demand on supply.
	Populations	Same as County
	Other	None
Roy Water Conservancy District	Structures	Same as County
	Systems	Same as County
	Populations	None
	Other	None
Taylor West Weber Water District	Structures	Same as County
	Systems	Same as County
	Population	Overheating is a health concern.
	Other	None
Ogden School District	Structures	Same as County
	Systems	Same as County
	Populations	Employees, students, and residents within school district may be at risk.

Plan Participant Name	Asset Type	Description
	Other	Some outdoor school activities may be affected by extreme heat. Attendance could be affected.
Weber Morgan Health Depart-ment	Structure	Same as County
	Systems	Same as County
	Populations	Poses threat to vulnerable populations from heat exposure that could lead to other health conditions
	Other	None
Weber School District	Structures	Same as County
	Systems	Some buildings are older and do not have air conditioning.
	Populations	Employees and students could be affected.
	Other	Some outdoor school activities may be affected by extreme heat. Attendance could be affected.
West Warren-Warren Water Improvement District	Structures	Same as County
	Systems	Water pumps and meters can burn out from overuse in ex-treme heat and water flow could stop.
	Populations	Residents could be affected by water flow disruptions if sys-tem is overworked.
	Other	None
North View Fire District	Structures	Same as County
	Systems	Power systems could be strained.

Plan Participant Name	Asset Type	Description
	Populations	Health of elderly and low-income residents is a concern. District employees could be affected when working in extreme heat.
	Other	None
Weber Fire District	Structures	Same as County
	Systems	Same as County
	Populations	Firefighters are susceptible to health risks from working outdoors in extreme heat wearing heavy gear.
	Other.	None

Impacts

Table 84 presents the risk exposure values and the associated costs of projects in the event of extreme heat. This information is essential for assessing the financial impact and risk mitigation strategies related to the projects.

Table 84: Risk Exposure Value, Weber County[136]

Building Value	Population Equivalence	Population	Agriculture	Total
$39,738,232,617	$2,952,809,224,010	$254,552.52	$41,039,688	$2,992,588,496,315

Table 85 and Table 86 present the estimated annual financial losses to buildings and population in Weber County caused by extreme heat. These data provide an overview of the projected economic impact of extreme heat on the area, considering structural damage to buildings and potential effects on the population.

[136] FEMA, "National Risk Index Weber County Utah." https://hazards.fema.gov/nri/report/viewer?dataLOD=Counties&dataIDs=C49057#SectionExpectedAnnualLoss

Table 85: Expected Annual Loss from Extreme Heat, Weber County[137]

Building Value	Population Equivalence	Population	Agriculture	Total
$23,652	$2,742,918	0.24	$1,801	$2,768,372

Table 86: Expected Annual Loss from Extreme Heat to Jurisdictions in Weber County[138]

Jurisdiction	Expected Annual Loss	Exposure Loss	Vulnerability Score
Farr West	$62K	$63B	Relatively High
Harrisville	$55K	$56B	Relatively High
Hooper	$70K	$71B	Relatively High
Huntsville	$4.9K	$7.7B	Relatively Low
Marriott-Slaterville	$39K	$40B	Relatively High
North Ogden	$26K	$38B	Relatively Moderate
Ogden	$30K	$30B	Relatively High
Pleasant View	$65K	$68B	Relatively High
Riverdale	$60K	$61B	Relatively High
Roy	$70K	$71B	Relatively High
South Ogden	$37K	$37B	Relatively High
Uintah	$80K	$80B	Relatively High
Washington Terrace	$66K	$67B	Relatively High
West Haven	$54K	$55B	Relatively High

Table 87: Impacts of Extreme Heat by Jurisdiction

Plan Participant Name	Impacts
Weber County	Surging energy/electrical service demand may create outages or interruptions. Homebound individuals reliant on home health supplies such as oxygen are severely impacted by these events due to loss of power. Underserved populations without functioning cooling systems in their homes are also impacted creating potential, life threatening conditions due to extreme heat.

[137] Ibid.
[138] Ibid.

Plan Participant Name	Impacts
Farr West	Extreme heat can have a significant cost to human sustainment, including possibly death. The local environment, ranching, farming, wildlife, and roads also could be impacted. Economic losses could occur to the agricultural industry. Heat can cause roads to buckle and jeopardize transportation. People across the community could experience negative health impacts, including illness and death.
Harrisville	Energy systems may be overwhelmed due to high usage. The entire population, including vulnerable populations like the elderly, are at-risk from illness or death due to extreme cold. This is particularly likely for residents living in older homes built before more modern insulation and air conditioning.
Hooper	Energy systems may be overwhelmed due to high usage. Unable to cool buildings, possibly due to power loss. Vulnerable populations, including the elderly, could be injured or killed.
Huntsville	During power outages, vulnerable populations, including those without AC, are at-risk. Additionally, seniors and people living with preexisting medical conditions are at higher risk of this hazard. Impacts to public health include injury and death.
Marriott-Slaterville	Increased strain on the power system from increased energy consumption during extreme heat may cause power outages. Public health may be impacted, including injury or death due to extreme heat. Vulnerable populations including those living without AC, people that depend on an electricity-powered medical device, and people who work outdoors are more likely to experience these kinds of impacts.
Pleasant View	The elderly and low-income populations may be injured or killed. Power outages may be experienced due to increase strain on the system.
North Ogden	Power systems could be shut down. The elderly and youth in particular may be injured or killed.
Ogden	Power outages could happen. The homeless and low-income populations in particular may be injured or killed.
Riverdale	The population, including the homeless and elderly, is at risk or injury or death. Power outages could occur.
Roy	The population, including those living in older buildings without AC, may experience negative health impacts including injury and death.

Plan Participant Name	Impacts
South Ogden	Older homes may need more air conditioning or insulation, making it difficult to maintain safe indoor temperatures during extreme heat events. This is particularly dangerous for elderly residents who cannot afford or access cooling systems. The elderly are highly susceptible to heat-related illnesses, such as heatstroke, heat exhaustion, and dehydration, because of their reduced ability to regulate body temperature and pre-existing health conditions. Prolonged extreme heat can increase mortality and morbidity among this population.
Uintah	Extreme heat can cause safety concerns for residents, particularly those living in housing with inadequate air conditioning or vulnerable populations like the elderly who are more susceptible to heat-related illnesses. Power outages are also a concern during periods of extreme heat as these could lead to an increase in residents needing shelter or experience illness or death due to heat.
Washington Terrace	Extreme heat can be a problem for vulnerable populations at risk of heat-related illnesses. The entire population, but particularly vulnerable populations, may experience illness or death. City facilities are climate controlled and would not be considered at risk. However, in the worst-case scenario, the roadways could see heat-related damage, delaying or disrupting transportation and costing economic losses to repair.
West Haven	The power grid for all parts of the city could be overwhelmed, disrupting services and causing power outages. The population is at risk of dehydration and other heat related illnesses or death.
Pineview Water System	Systems could be impacted. Increased water use and demand on supply also could occur. Overheating is a risk. People in the service area could experience illness or death.
Roy Water Conservancy District	Systems could be impacted. Increased water use and demand on supply could occur. Electrical services could be impacted, affecting services. Disruption in services could impact customers.
Taylor West Weber Water District	Systems could be impacted. Increased water use and demand on supply also could occur. Overheating is a risk. People in the service area could experience illness or death.
Ogden School District	Facilities, employees, students, and residents in the boundary area are at risk of injury or death. Power systems may not work. School activities may be impacted.

Plan Participant Name	Impacts
Weber Morgan Health District	The entire population in the district's service area could experience heat-related illness or death. The elderly and low-income population in particular may be impacted. Additional services may be needed to address these kinds of heat-related public health concerns. Staff may be called upon to support extreme heat events.
Weber School District	There is no air conditioning in some older buildings. School activities may be affected, and staff and students could experience health impacts.
West Warren-Warren Water Improvement District	Excessive use of water pumps and meters could cause them to be overworked and burn out, stopping water flow in the area. Residents could be impacted by disruptions to the system. Public health would be a concern if water is impacted.
North View Fire District	The elderly and low-income population are at risk. Additional response services may be required of the District to respond to these types of concerns. Secondary hazards, such as wildfire, may also impact the District. Staff may be injured or killed.
Weber Fire District	Extreme heat can negatively impact the communities, but firefighters are especially vulnerable to heat. Firefighters must wear heavy gear and work in harsh conditions for long periods. Firefighters may be injured or killed.

Changes in Development

Weber County is expected to experience population growth between 2020 and 2060 for several reasons. The County's healthy economy attracts businesses and workers, creating job opportunities and contributing to its growth. The county's proximity to Salt Lake City, one of the fastest-growing metropolitan areas in the United States, also positively influences the County's growth. Furthermore, Weber County's high quality of life, including excellent schools, various recreational opportunities, and a strong sense of community, makes it an appealing place for people to reside and raise their families.

Over the past five years, Weber County has experienced substantial development, both residential and commercial. This encompasses the growth of housing subdivisions, the addition of new residential units, and an increase in retail centers, office space, and industrial facilities. The County's advantageous position offers ongoing prospects for growth and investment, with expected expansion in the urban, residential, commercial, and industrial sectors.

Population growth can significantly affect development trends in Weber County. With an increase in population, the demand for housing, infrastructure, and services, such as healthcare, education, and transportation, also rises. This can lead to increased development in these areas and the construction of new

businesses and commercial properties to meet the needs of the growing population. Moreover, it can positively impact the local economy, as more people mean a larger workforce and increased consumer demand for goods and services. However, it can also cause challenges, such as increased traffic congestion, resource strain, and potential environmental impacts.

It is challenging to predict the specific regions of Weber County that will be most affected by population growth, as it will likely be spread out across the County. However, areas undergoing rapid growth or with high-potential growth, such as Ogden, Roy, and North Ogden, may have a more significant impact. In addition, regions near major transportation routes or with easy access to amenities, such as shopping, healthcare, and education, may experience increased growth and development. Finally, the impact of population growth depends on economic conditions, infrastructure investment, and local policy decisions.

As Weber County experiences population growth, agricultural areas will likely be affected. The increased demand for housing, infrastructure, and services may put pressure to convert agricultural land into other uses. This could lead to the loss of valuable farmland and impact the local food supply. However, it is essential to note that agriculture is an important industry in Utah, and local leaders and stakeholders may take steps to protect and preserve agricultural land in the County. As the demand for locally grown food increases, farmers may have opportunities to expand their operations and meet the needs of the growing population. Overall, the impact of population growth on Weber County's agricultural areas will depend on various factors, including land-use policies, economic conditions, and community priorities.

Table 88: Extreme Heat Changes in Development Summary

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Weber County	Increased	The current housing availability crisis and rising numbers of habitual homeless have exposed a growing number of underserved individuals to this hazard.
Farr West	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from extreme heat.
Harrisville	Decreased	The city has extreme temperatures. Many older homes were built before more modern insulation, which can pose a risk to those living in them, especially the elderly. New homes are being built to better standards and have more insulation to protect against extreme temperatures.
Hooper	Increased	Hooper has seen an increase in population growth.
Huntsville	Decreased	New building stock includes AC, which reduces risk to this hazard.
Marriott-Slaterville	Stayed the Same	The city continues to be located in at-risk area.
North Ogden	Stayed the Same	The population demographic has stayed constant.

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Ogden	Increased	Due to high demand during peak hours and age, a larger population could be affected by extreme heat issues, including loss of power and breaks in water supply pipes.
Pleasant View	Stayed the Same	The population demographic has stayed constant.
Riverdale	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from extreme heat.
Roy	Stayed the Same	Changes in development have not impacted the overall vulnerability, but the city is still at risk.
South Ogden	Decreased	Planning and tabletop exercises specifically for extreme heat events have helped to ensure readiness for intense heat waves and high temperatures.
Uintah	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from extreme heat.
Washington Terrace	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from extreme heat.
West Haven	Stayed the Same	Since the last plan update, vulnerability has stayed the same, due to no changes in development.
Ogden School District	Decreased	There is a decreased risk because some facilities have added systems and generators.
Pineview Water Systems	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from extreme heat.
Roy Water Conservancy District	Increased	Vulnerability increased since last plan update due to impacts of climate change.
Taylor West Weber Water District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from extreme heat.
Weber-Morgan Health Department	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from extreme heat.
Weber School District	Decreased	The rebuilding of Roy Jr. High School and the current rebuilding of Roosevelt Elementary School have decreased overall vulnerability because of the addition of air-conditioning systems at these individual sites.

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
West Warren–Warren WID	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from extreme heat.
Weber Fire District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from extreme heat.
North View Fire District	Stayed the Same	The population demographic has stayed constant.

SECONDARY HAZARDS

Extreme heat can have cascading effects on people, animals, and infrastructure. In terms of people, extreme heat can cause heat exhaustion, heat strokes, dehydration, and other heat-related illnesses. Elderly people, young children, and those with pre-existing medical conditions are particularly vulnerable to these effects. Extreme heat can also exacerbate health conditions, such as respiratory and cardiovascular illnesses. In addition, extreme heat can reduce productivity, cause people to miss work or school, and have economic impacts.

In animals, extreme heat can cause dehydration, heat exhaustion, and other heat-related illnesses. It can also lead to reduced food and water availability, which can have a cascading effect on ecosystems and wildlife populations.

Infrastructure can also be affected by extreme heat. Extreme heat can cause significant damage to buildings in several ways. High temperatures can cause expansion and contraction of building materials, which can lead to cracks in walls, ceilings, and floors. Heat can also cause metal structures to warp or bend, weakening the bonds in adhesives and sealants. In addition, extreme heat can cause electrical systems to malfunction, resulting in power outages and potential fire hazards. Finally, prolonged exposure to high temperatures can cause building materials to degrade and break down over time, leading to costly repairs and replacement.

Flood

Flood refers to the temporary condition of partial or complete inundation of normally dry land. The severity of a flood event is determined by several major factors: stream and river basin topography and physiography, precipitation and weather patterns, recent soil moisture conditions, and the degrees of vegetative clearing and impervious surface. Typically, floods last for several days.

The primary types of flooding are pluvial and riverine. Pluvial flooding is caused by excessive rainfall, regardless of nearby water sources. Riverine or inland flooding is caused by excessive precipitation and water runoff in the watershed of a stream or river. Riverine flooding is the overbank flooding of rivers and streams, typically from large-scale weather systems that generate prolonged rainfall over a wide geographic area. Thus, flooding is a naturally occurring and inevitable event. Some river floods occur seasonally when winter snowpack melts or spring rains fill river basins with too much water too quickly.

Floodplains are lowland areas near rivers, lakes, reservoirs, and low-terrain urban areas that are subject to recurring floods. Flooding occurs when the peak discharge, or rate of flow in cubic feet per second (cps), is larger than the channel of the river or the capacity of storm sewers in a city.



Figure 102: Flooding on Southfork of Ogden River, 2023

Location

The areas of greatest flood potential are in western Weber County, Ogden, along the Weber River in Uintah, and the flatlands in the western part of the County. The Weber and Ogden Rivers have recently experienced flooding. In 2009, Ogden City completed an urban channel restoration of the Ogden River, which restored the banks of the river and the riparian habitat and removed debris. This made the Ogden River more resilient to the 2011 flooding event, and there was minimal damage at these locations. Major flood risk still remains along much of the Weber River, near homes, businesses, and transportation corridors.

Smaller creeks that can create flood problems in the County include the North and South Forks of the Ogden River, Taylor Canyon Creek, Wolf Creek, Sheep Creek, Waterfall Canyon Creek, Beus Canyon Creek, Burch Creek, Cold Water Canyon Creek, Four Mile Creek, Six Mile Creek, and Hot Springs Creek. The Weber River drainage is approximately 2,460 square miles. The Warren area could experience flooding on agricultural lands and homes if the West Dike of the Weber River between 4700 West and 1100 South failed. In the past, businesses and roads were damaged from flooding between 1990 West and 1300 South near State Road 89 in the West Haven area.

Figure 103 shows the effects of flooding in May 2023, and Figure 104 through Figure 113 show the locations of critical facilities in 100-year and 500-year flood zones.



Figure 103: Floodwaters Encroaching on a Picnic Shelter along the Ogden River, May 4, 2023[139]

[139] Standard-Examiner, 2023, Weber County Emergency Management keeping tabs on flood potential as spring approaches | News, Sports, Jobs – Standard-Examiner Photo Credit Rob Nielsen

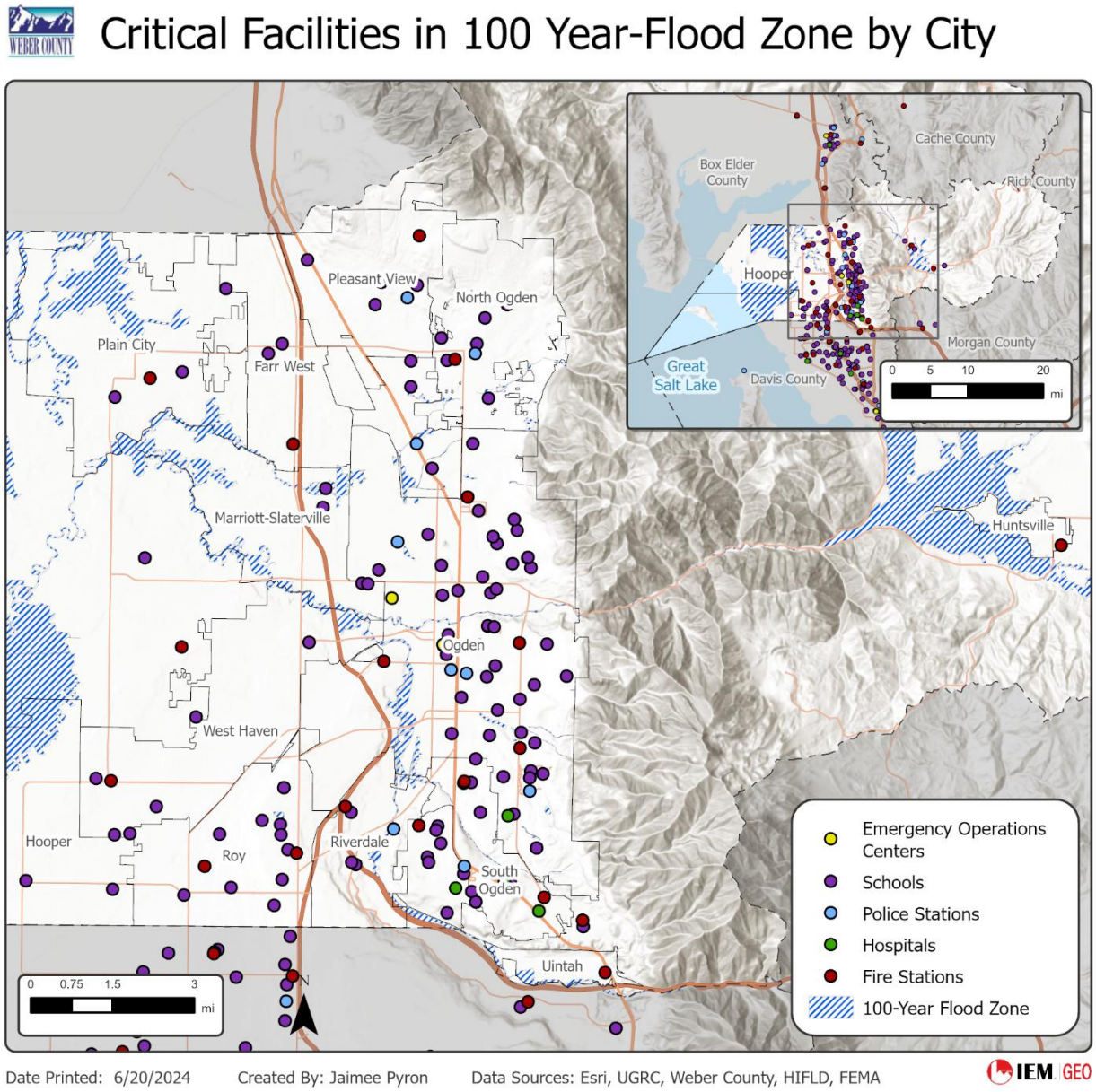


Figure 104: Critical Facilities in 100-Year Flood Zones by City

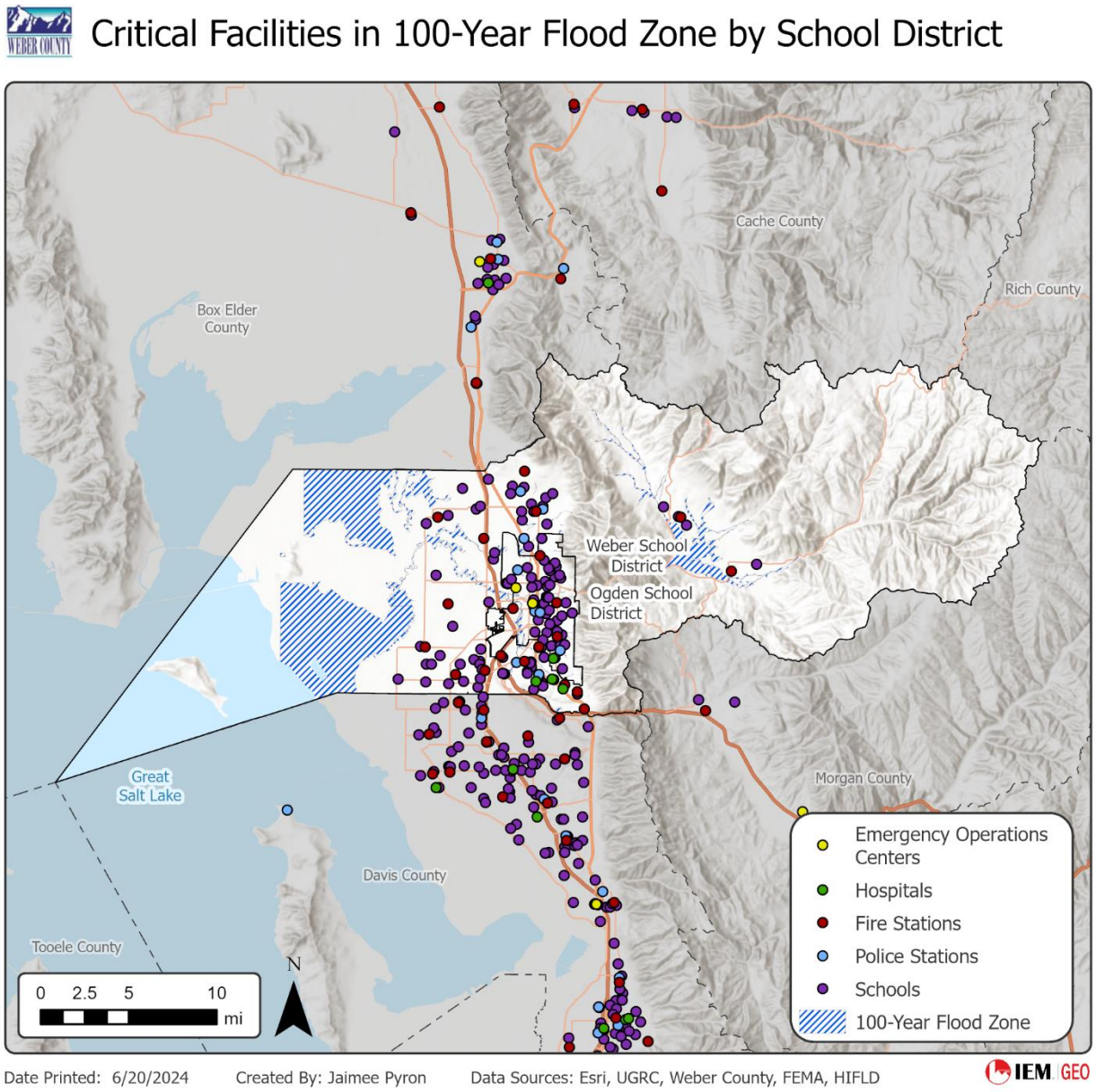


Figure 105: Critical Facilities in 100-Year Flood Zones by School District

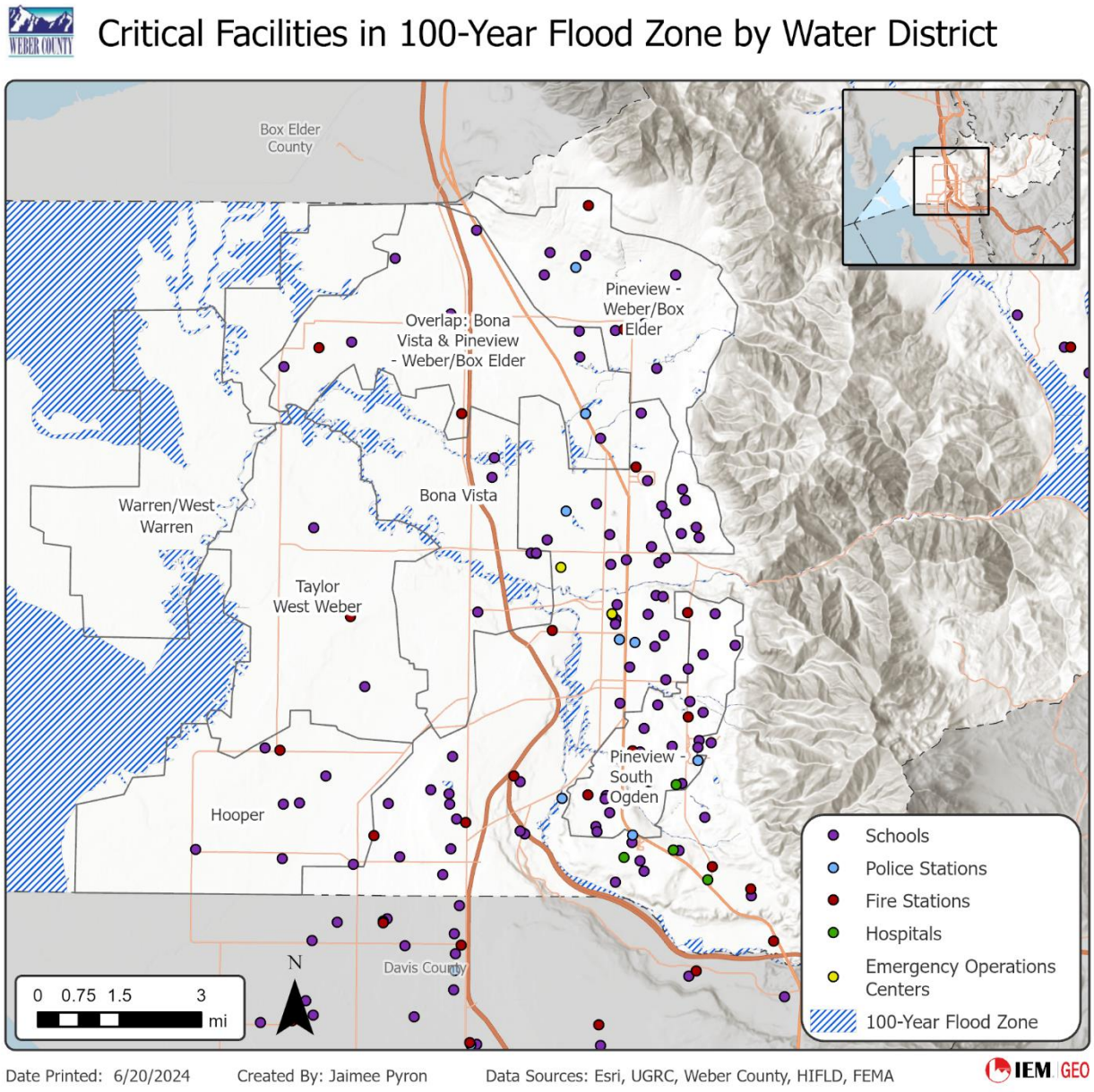


Figure 106: Critical Facilities in 100-Year Flood Zones by Water District

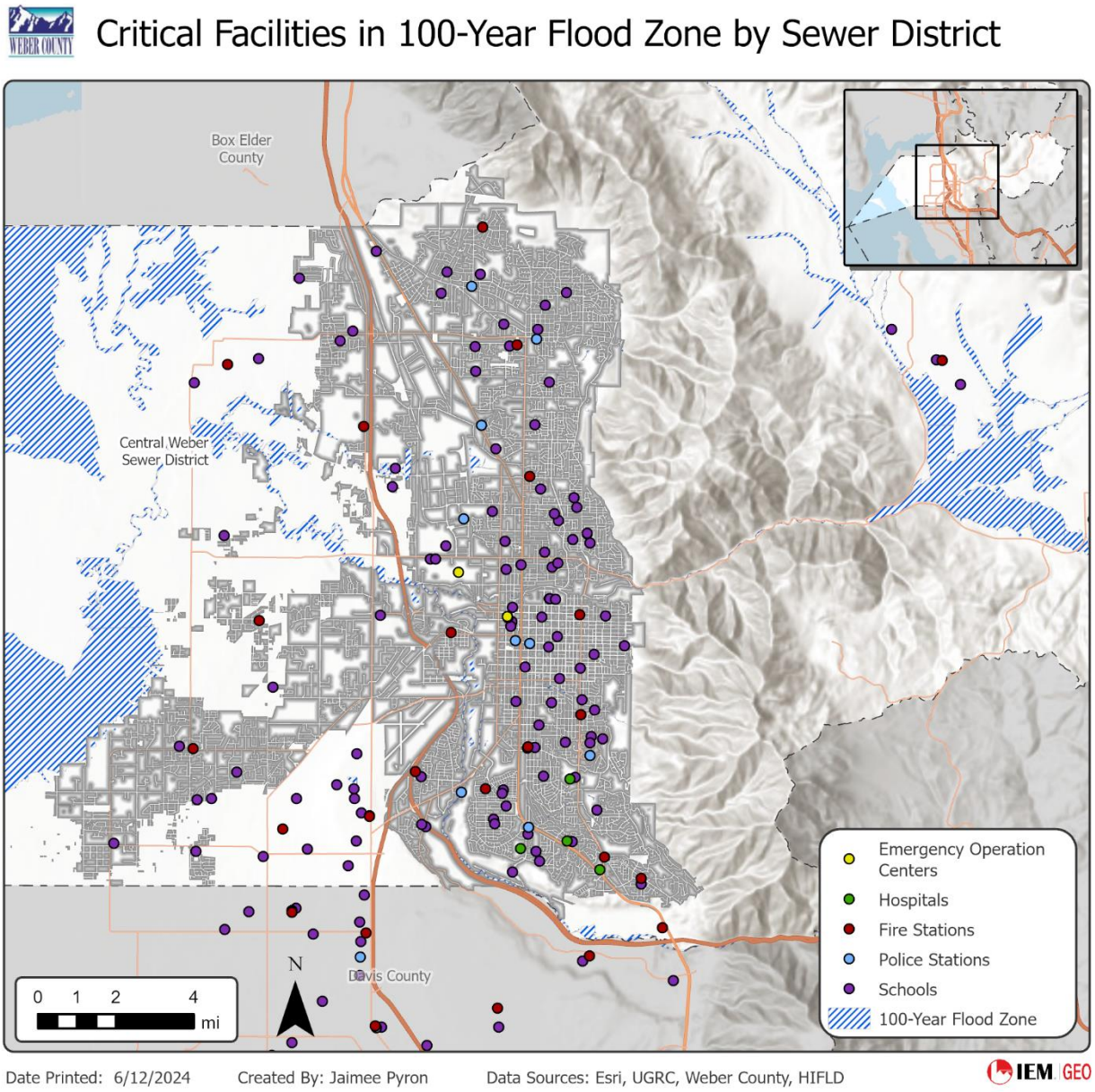


Figure 107: Critical Facilities in 100-Year Flood Zones by Sewer District

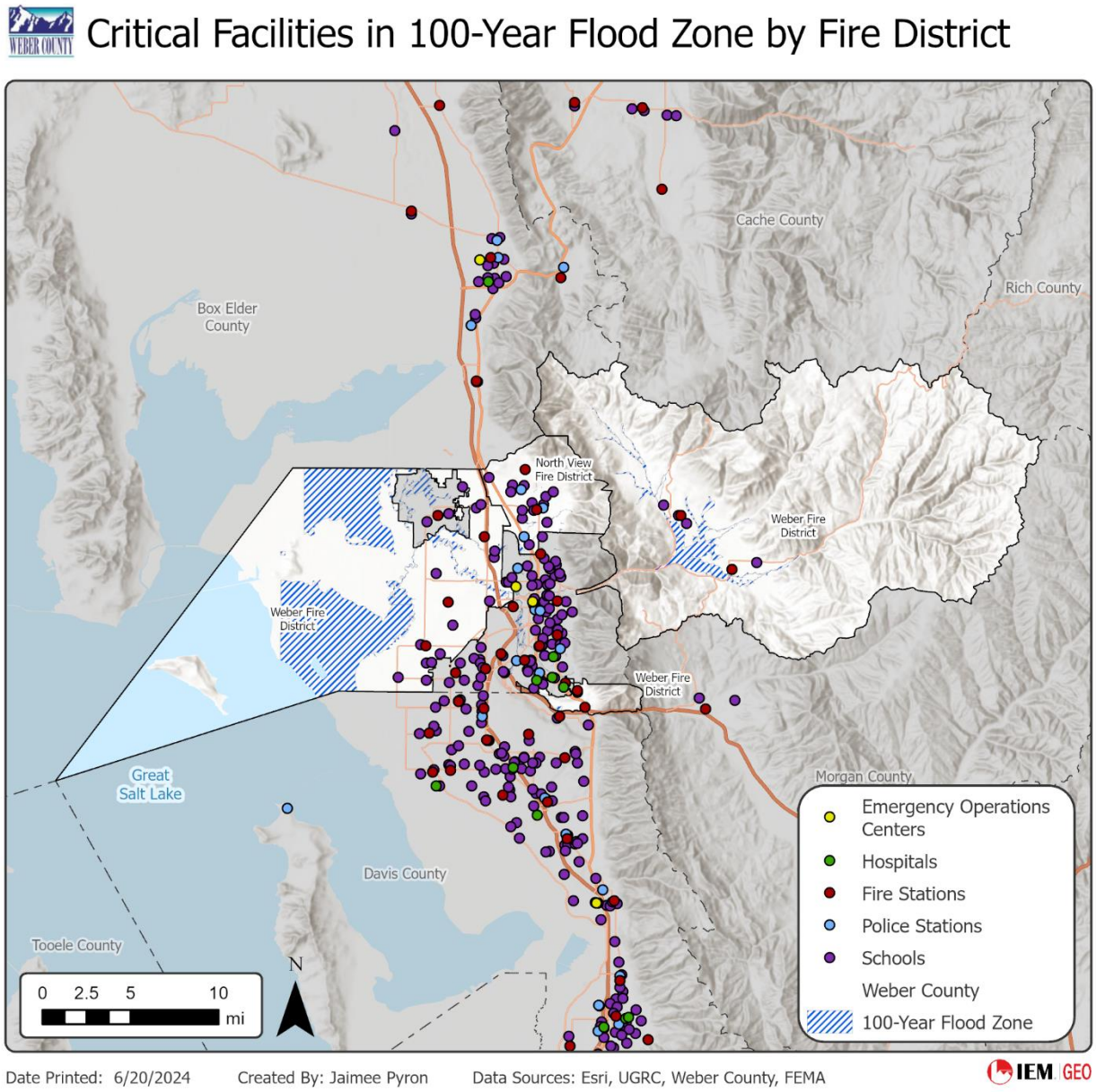


Figure 108: Critical Facilities in 100-Year Flood Zones by Fire District

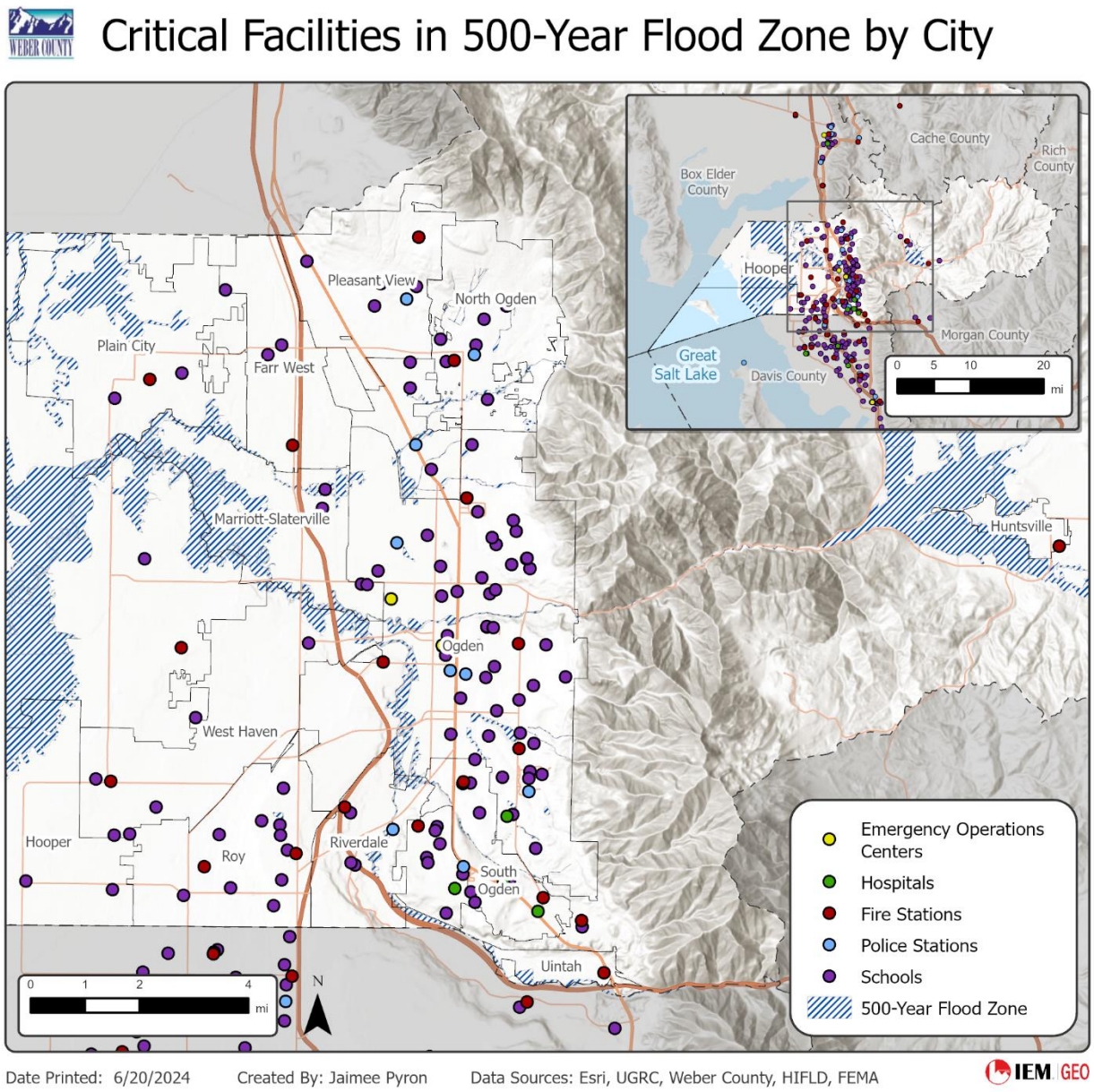


Figure 109: Critical Facilities in 500-Year Flood Zones by City

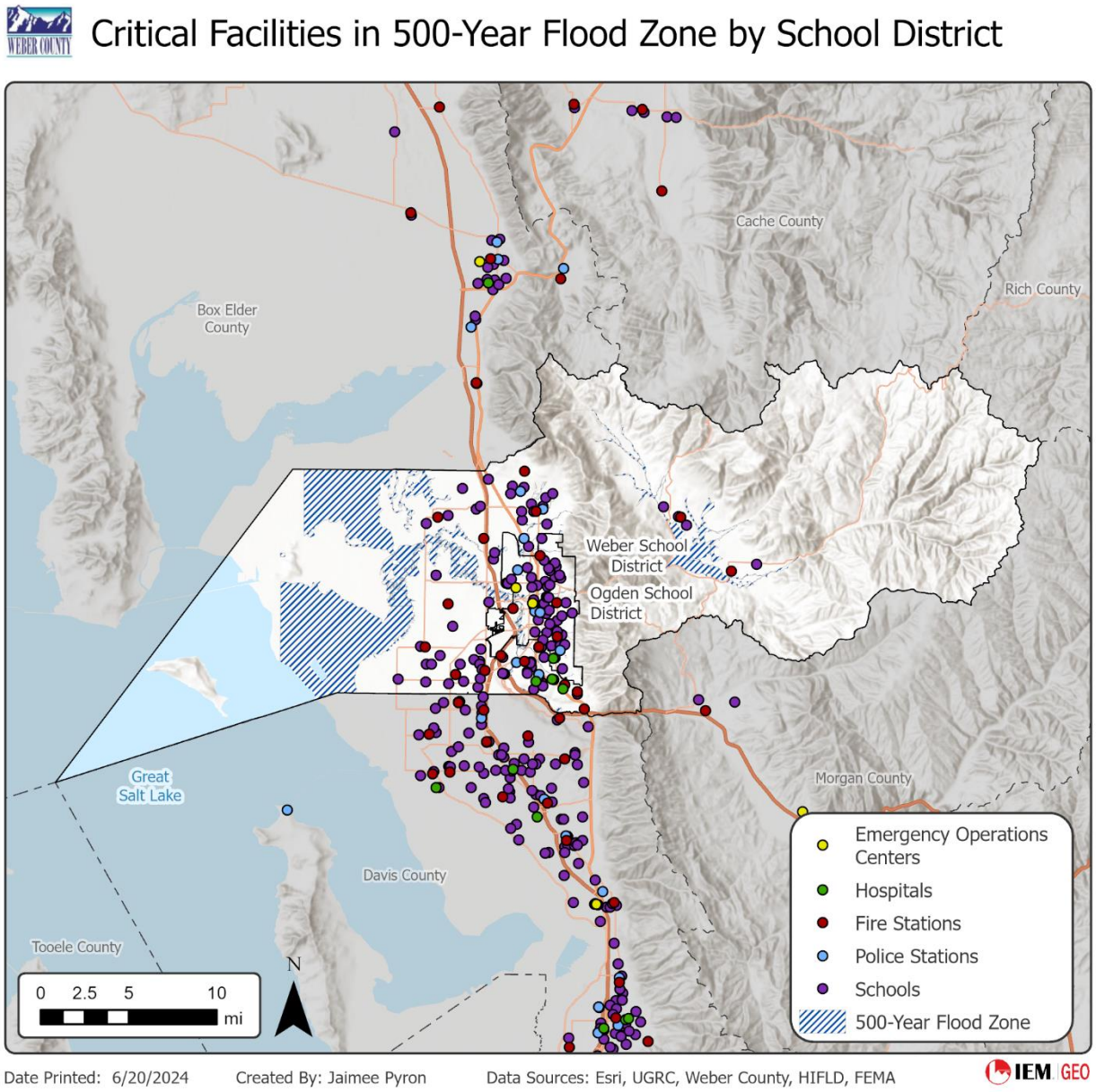


Figure 110: Critical Facilities in 500-Year Flood Zones by School District

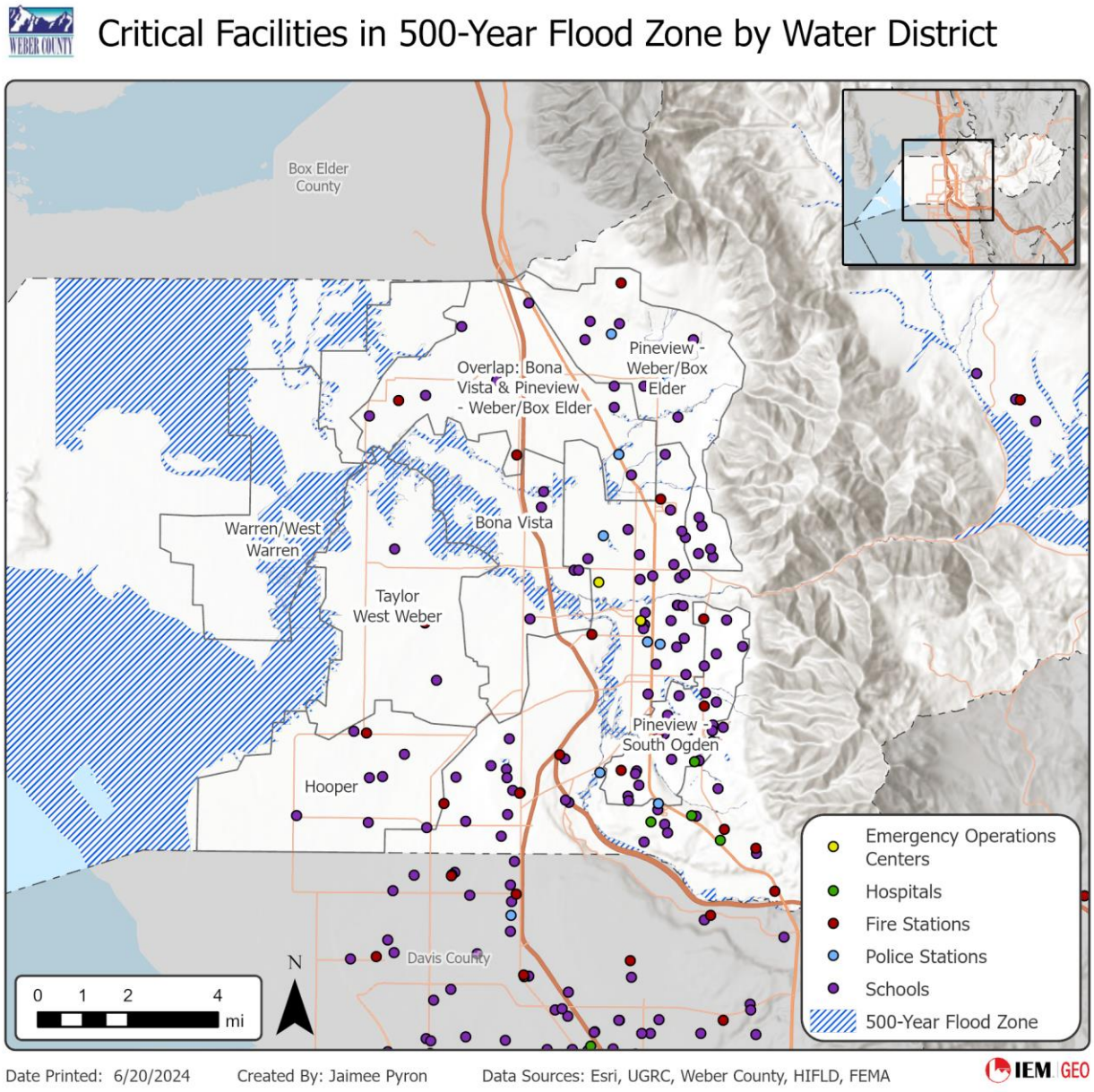


Figure 111: Critical Facilities in 500-Year Flood Zones by Water District

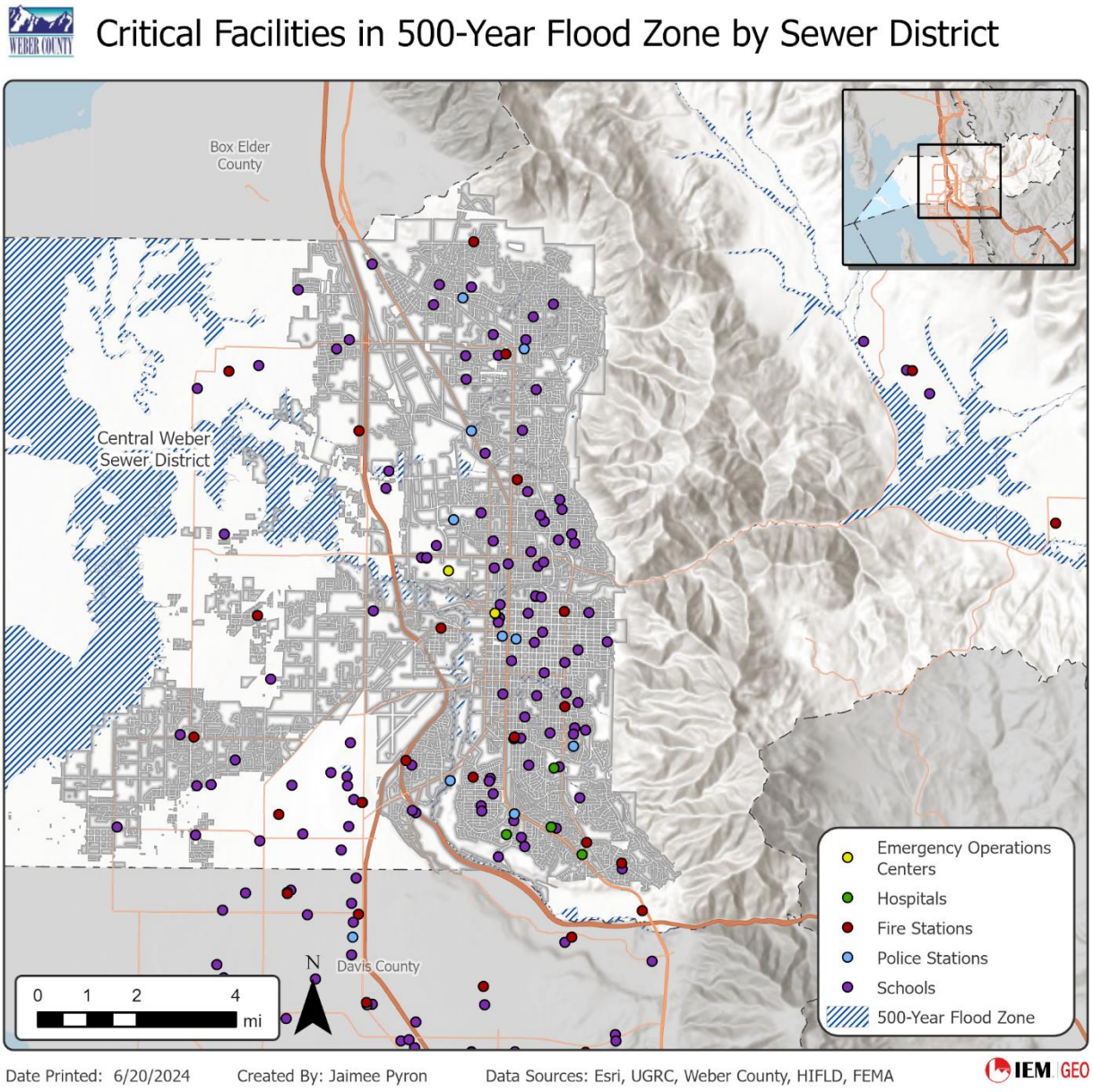


Figure 112: Critical Facilities in 500-Year Flood Zones by Sewer District

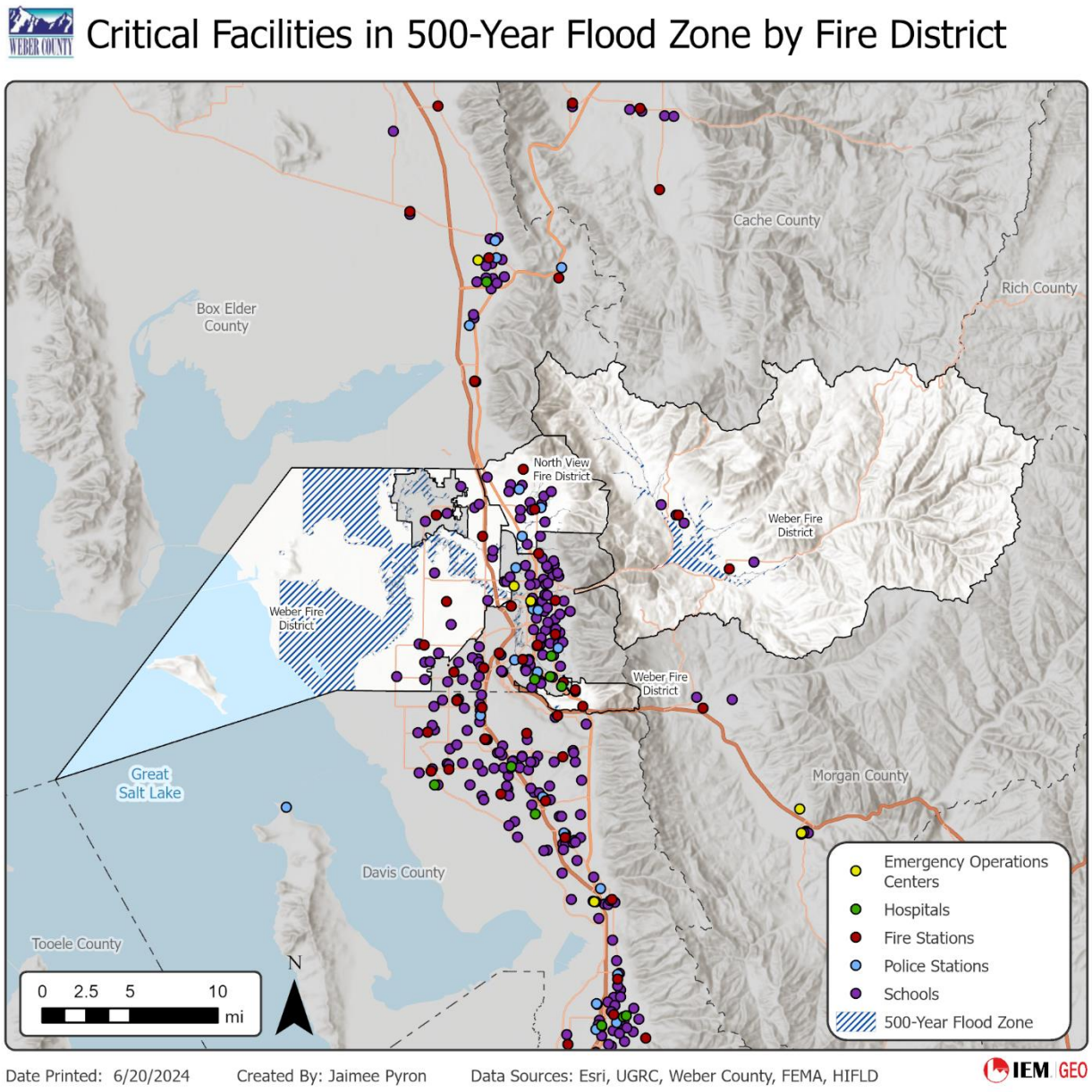


Figure 113: Critical Facilities Located in 500-Year Flood Zones by Fire District

Magnitude/Extent

The greatest flood risk in Weber County has been associated with cloudburst storms that cause localized flash flooding. Cloudburst storms generally cause flash flooding in localized areas. Heavy rain and rapid snowpack melt also can cause unusually heavy flows of water, mud, or debris. The annual snowmelt, when

the mountain snowpack on the Wasatch Front starts making its way down the slopes,[140] can create flooding problems in lower elevations, with substantial flooding in the Weber Basin each spring. Many channels and streams in the County regularly flood from channel constrictions from debris, increasing the risk of residential flooding. All the alluvial fans in the County have been developed or are being developed, so residential and commercial flooding is probable. Floods can also pose a threat to the agricultural lands in the lower portions of alluvial fans.[141]

Three irrigation canals in Weber County affect the flood threat: the Ogden–Brigham Canal, the Davis–Weber Canal, and the Willard Canal. Some private canals are not considered in this report. The Davis–Weber Canal was breached in 1999 and flooded over 70 homes in Riverdale. This event was declared a city, county, and state disaster. The Ogden–Brigham Canal was breached in 1979 due to a rockslide. Since 1853, the County experienced over 360 flash floods and more than 170 snowmelt floods. The Willard Canal can cause considerable damage should it breach.

Extent for flooding can be described in terms of the percent chance of occurrence or, more commonly, the recurrence-interval. Flood extents are therefore sometimes referred to as the 100-year (1% annual chance of occurring) or 500-year flood event (0.2% annual chance of occurring). These extents are mapped in the maps within the Location section of this profile.

Flooding events in Weber County can vary significantly in magnitude and extent, depending on factors such as storm intensity, duration, topography, and land use patterns. Minor floods may occur during short-duration storms, causing localized disruptions to transportation and minor property damage. Conversely, major floods, often driven by prolonged rainfall or rapid snowmelt, can inundate large areas, severely impacting infrastructure, residences, and critical facilities. These events can lead to widespread evacuations, economic losses, and pose risks to public safety. The county is also subject to the risks posed by 100- and 500-year flood zones, which delineate areas with a 1% and 0.2% annual chance of flooding, respectively. Properties and communities within these flood zones are especially vulnerable during significant storm events, requiring targeted mitigation strategies such as floodplain management, resilient infrastructure improvements, and public awareness campaigns to minimize future damage.

The **100-year flood zone** refers to an area that has a **1% chance** of flooding in any given year. This does not mean that flooding will only occur once every 100 years; rather, there's a 1 in 100 chance of a flood happening in any year. It is also known as the **Special Flood Hazard Area (SFHA)**, and properties in this zone are at a higher risk, often requiring flood insurance.

The **500-year flood zone** represents an area that has a **0.2% chance** of flooding in any given year. This means that there is a 1 in 500 chance of a flood happening in any year. While flooding is less likely in

[140] Standard-Examiner, 2023, Weber County Emergency Management keeping tabs on flood potential as spring approaches | News, Sports, Jobs – Standard-Examiner

[141] Alluvial fans are discussed further in the section on Problem Soils.

these areas compared to the 100-year flood zone, the risk is still present, especially during extreme weather events.[142]

Every jurisdiction in the county could be impacted by flood.

Previous Occurrences

Based on the FEMA Disaster Declarations Database, Weber County has received no designation for flood disaster declarations since the last plan update. North Ogden has experienced flash flood events in the past 15 years. Rapid snowmelt is another significant flood threat that results in unusually high runoff. Sheet flooding has occurred several times in the Upper Valley around Eden and Liberty. On April 18, 2023, the Governor of Utah issued Executive Order 2023-5 declaring a state of emergency in Utah due to flooding. On May 2, 2023, the Mayor of Ogden City also issue Proclamation 2023-1 declaring a state of emergency in Ogden City due to imminent flooding.

- **May 11, 2023:** High flows on the Ogden River associated with snowmelt from the record winter eroded the embankment supporting State Route 39 through Ogden Canyon, which caused one lane of the two-lane road to collapse. An upstream river gage reported flows above the action stage (greater than 1264 cubic feet per second [cfs]) from April 14 through May 2, and again between May 4 and May 11. Flows were within 100 cfs of the minor flood stage (1610 cfs), and they exceeded that stage by 5 cfs at one observation time on May 9, 2023. The road was closed for approximately 11 hours, with one stable lane allowed to reopen thereafter. The flooding caused a reported $14,000 in property damage.



Figure 114: Flooding on Southfork of Ogden River, 2023

- **May 1–2, 2023:** Spring runoff from the prior winter's record snowpack created elevated flows through area rivers, and in early May, an adult woman fell into the Weber River and drowned. As warmer weather set in during the spring, the prior winter's record-setting snowpack began to melt, with runoff leading to cold, elevated, and fast-flowing rivers. For context, the river gage at the outlet of Pineview Reservoir (which has controlled releases that subsequently flow into the Weber River) rose to 7.37 feet by 5:00 p.m. on May 1, just below the historical record peak of 7.38 feet. That same day, around 4:45 p.m., the first of many 911 emergency calls were received, stating that a person in distress

[142] Definitions of FEMA Flood Zone Designations. https://efotg.sc.egov.usda.gov/references/public/NM/FEMA_FLD_HAZ_guide.pdf

was seen in the waters of the Weber River and that they could hear screaming. First responders and emergency personnel began search and rescue operations on the Weber River from approximately Uintah to Marriott-Slaterville soon thereafter. By around 8:00 p.m., search and rescue crews shifted to a recovery mission. Recovery efforts continued for several days, but a body was never found, and the missing person was presumed to have drowned. She was later identified as a 28-year-old woman who had been walking her dogs along the Weber River at her family farm on the afternoon of the incident.

- **February 7, 2017:** Heavy rainfall and significant snowmelt through February combined to produce flooding in multiple locations across far northern Utah. Heavy rain and snowmelt led to residential basement flooding across portions of Weber County, with damage reported in Farr West, Plain City, and across parts of the Ogden Valley totaling $100,000 in property damage.
- **May 6–13, 2017:** Warming temperatures in the first half of May led to rapid snowmelt, causing the South Fork of the Ogden River to exceed flood stage east of the Pineview Reservoir and the Town of Huntsville, with flows at the Pineview Reservoir gage peaking near 1200 cfs. Much of the flooding was mitigated by sandbagging efforts, but minor damage was reported to cabins and lawns near the river, totaling a reported $20,000 in property damage.
- **April–July 2011**: During this time, the Weber and Ogden Rivers experienced flows of more than double the average peak flows. The Weber River's average peak flow is approximately 2800 cfs; during the 2011 runoff, it was 4580 cfs (USGS 2011). The sustained flows lasted for nearly four months, causing significant damage to bridges, trails, the river channel, businesses, recreational facilities, homes, and agricultural lands. A Major Disaster Declaration was issued in August 2011. Weber County received funding from the Natural Resources Conservation Service (NRCS) to complete emergency watershed projects to repair damage in many areas of the County but risks still exist along major portions of the Weber River where funding shortages have limited mitigation activities.

Probability of Future Occurrences

Considering the four notable flood events between 2016 and 2024, flooding has an approximately 50% chance of occurring in any given year in Weber County, signifying the probability is **Likely**.

Climate change research has shown that since 1955, snowpack seasons in Utah have become shorter because of warming conditions and changing trends in precipitation. The result has been flooding from early snowpack melt.[143]

Vulnerability Analysis

Snowpack/Spring water runoff flooding is the most consistent emergency event in Weber County. These events impact roadways, agricultural lands, water and wastewater infrastructure, homes, and private property. Secondary to the primary impacts, cultural and community facilities (parks, rivers, lakes, and reservoirs) are closed during these events, creating economic loss to the local agencies who manage and maintain these facilities. Additional details on assets exposed to flood hazards, including structures and

[143] Utah State Hazard Mitigation Plan, 2024, "Flood Climate Change Considerations", Utah SHMP 2024.pdf – Google Drive

contents, essential facilities, transportation systems, and utility systems are discussed in the Hazus analysis section.

Table 89: Flood Vulnerability Assessment

Plan Participant Name	Asset Type	Description
Weber County	Structures	Snowpack/Spring water runoff flooding is the most consistent emergency event in Weber County. These events can impact homes, businesses and private property.
	Systems	Infrastructure including roadways, agricultural lands, water and wastewater infrastructure are vulnerable to flooding.
	Populations	Individuals may be displaced from homes if residences are flooded. Disruptions to transportation or other services may isolate people temporarily.
	Other	Secondary to the primary impacts, cultural and community facilities (parks, rivers, lakes, and reservoirs) are closed during these events, creating economic loss to the local agencies that manage and maintain these facilities.
Farr West	Structures	Homes and industrial facilities, especially those near waterways and canals.
	Systems	Same as County
	Populations	Same as County
	Other	Snowmelt and subsequent discharge from higher elevations and torrential rains could be a source of flooding. Can also have impacts on nature/the environment that are difficult to estimate.
Hooper	Structures	Homes, farmland, and other structures are at risk of floods.
	Systems	Transportation routes are at risk of flooding. Storm drain systems need repairs in many areas of the city. Large amounts of water could cause these drains to fail prematurely.

Plan Participant Name	Asset Type	Description
	Populations	Same as County
	Other	Agriculture, including livestock, is vulnerable to flooding.
Harrisville	Structures	The Harrisville Police Department is within the 100-year floodplain. Several streams run through the City of Harrisville, which must deal with stormwater and runoff from cities at higher elevations. The city has many residential areas that would be affected by large-scale flooding including around 2000 N and 1925 N. Moreover, there are newer developments on what had been agricultural land. This has caused flooding issues when water from the remaining agricultural land flowed into neighboring developments.
	Systems	Same as County
	Populations	Same as County
	Other	None
Huntsville	Structures	Few structures in flood zones.
	Systems	Minimal. Possible impacts to agriculture or recreation areas and transportation routes.
	Populations	None
	Other	Flooding risk coincides with Pineview Reservoir at full capacity .
Marriott-Slaterville	Structures	Many structures could experience damage from flooding.
	Systems	Transportation and other systems could be disrupted.
	Populations	Same as County

Plan Participant Name	Asset Type	Description
	Other	None
North Ogden	Structures	Residences are at risk.
	Systems	Roads and storm water systems are a concern.
	Populations	Same as County
	Other	None
Ogden	Structures	Homes and business in low-lying areas, particularly near the Ogden and Weber Rivers, are at risk.
	Systems	Stormwater drainage systems and transportation networks, including highways and railroads, could be affected.
	Populations	Residents in flood-prone neighborhoods are at risk. Communities that rely on agriculture and irrigation systems could be affected.
	Other	Wetlands and natural habitats are affected by floodwaters. Flooding can result in soil erosion and sedimentation issues. Flooding can affect the economy due to agricultural losses in flooded fields, business interruptions, and property damage.
Plain City	Structures	Structures near Weber River and Willard Bay are a high concern.
	Systems	Same as County
	Populations	Residents near the Weber River and Willard Bay
	Other	None
Pleasant View	Structures	Residential structures and city buildings are at risk.

Plan Participant Name	Asset Type	Description
	Systems	Roads and infrastructure are at risk.
	Popula-tions	Same as County
	Other	None
Riverdale	Struc-tures	Residences in Riverbed area are at risk.
	Systems	Same as County
	Popula-tions	Same as County
	Other	None
Roy	Struc-tures	Homes and businesses in vulnerable areas. Homes along Howard Slough are a specific concern.
	Systems	High inflow into the sewer system could potentially exceed sewer and lift station capacity. Waterways may be contami-nated. Roads could be damaged.
	Popula-tions	Same as County
	Other	None
South Ogden	Struc-tures	Same as County
	Systems	Flooded roads and bridges can isolate neighborhoods and may impede emergency services and transportation.
	Popula-tions	Elderly residents and others may lack access to emergency services or be unable to access other essential services.
	Other	None

Plan Participant Name	Asset Type	Description
Uintah	Structures	Structures, particularly along the river in the high-risk flood zone, are at risk.
	Systems	Roads are at risk of flooding, particularly near the river.
	Populations	Populations, particularly those in high-risk flood zones, are at risk.
	Other	None
Washington Terrace	Structures	Some structures may be at risk for localized flooding following a significant rain event.
	Systems	Flood control systems, such as retention or detention, could be improved.
	Populations	Same as County
	Other	None
West Haven	Structures	All buildings including residential and commercial
	Systems	Infrastructure and agricultural systems are at risk.
	Populations	Safety of residents is a concern.
	Other	None
Pineview Water System	Structures	Homes and business in service area could be affected by flooding.
	Systems	Water systems and other infrastructure could be damaged by flooding.
	Populations	None
	Other	None

Plan Participant Name	Asset Type	Description
Roy Water Conservancy District	Structures	District facilities are at-risk to flooding.
	Systems	Water systems are at-risk.
	Populations	Customers would be at-risk if the district is affected.
	Other	None
Taylor West Weber Water District	Structures	Facilities are at-risk to flooding.
	Systems	Systems and infrastructure could be disrupted by flooding.
	Population	None
	Other	None
Ogden School District	Structures	None
	Systems	Same as County
	Populations	Employees and students/residents of the district may be at risk.
	Other	None
Weber Morgan Health Department	Structures	None
	Systems	None
	Populations	Exposure to disease associated with floodwaters could impact vulnerable populations.
	Other	None

Plan Participant Name	Asset Type	Description
Weber School District	Structures	None
	Systems	Potential risk associated with the Weber River and Pineview Reservoir.
	Populations	Students and employees could be affected.
	Other	None
West Warren-Warren Water Improvement District	Structures	District building could receive flood damage to structure and equipment.
	Systems	Water pumps and water lines could be damaged. Individual water meters and backflow systems could be damaged and contamination of culinary water is possible.
	Populations	Residents would be affected by inability to deliver water if systems are damaged.
	Other	None
Central Weber Sewer Improvement District	Structure	Wastewater collection and treatment structures could be damaged.
	Systems	Structural damage could disrupt operations to customers.
	Populations	Disruption to district customers.
	Other	None
North View Fire District	Structures	Residential structures and city buildings are at risk.
	Systems	Roads, water lines and other infrastructure could be damaged.

Plan Participant Name	Asset Type	Description
	Popula-tions	Residents in service area and district employees could be affected.
	Other	None
Weber Fire District	Struc-tures	Several structures in service area are located in flood plains with a history of flooding, particularly during snow melt.
	Systems	Same as County
	Popula-tions	Residents in service area would be impacted by flooding and infrastructure disruptions.
	Other	None

Impacts

The flood hazard areas of Weber County are subject to periodic inundation by flood waters, which results in potential loss of life and property, health and safety hazards, disruption of commerce and governmental services, and extraordinary public expenditures for flood protection and relief, all of which adversely affect public health, safety, and general welfare. Potential flood losses are caused by the cumulative effect of obstructions in floodplains, structures in flood hazard areas which are inadequately elevated or otherwise unprotected from flood damage and uses deemed unsuitable for floodplain areas or that do not account for the increased flood risk.[144]

RiskFactor.com reports that 27.9% of properties in Weber County are at risk of flooding, and 30,325 properties, or 28.8%, will be at risk of flooding in the next 30 years (see Figure 115). FEMA reports that 1490 properties in Weber County are located in the Special Flood Hazard Area (Zone A or V).

[144] WeberCountyUtah.gov, 2023, Ordinance Amending Title 22 of the Weber County Code to Update Flood Damage Prevention Regulations https://www.webercountyutah.gov/commission/documents/uploads/G3%20County%20Code%20Title%2022%20-%20Flood%20Damage%20Prevention.pdf

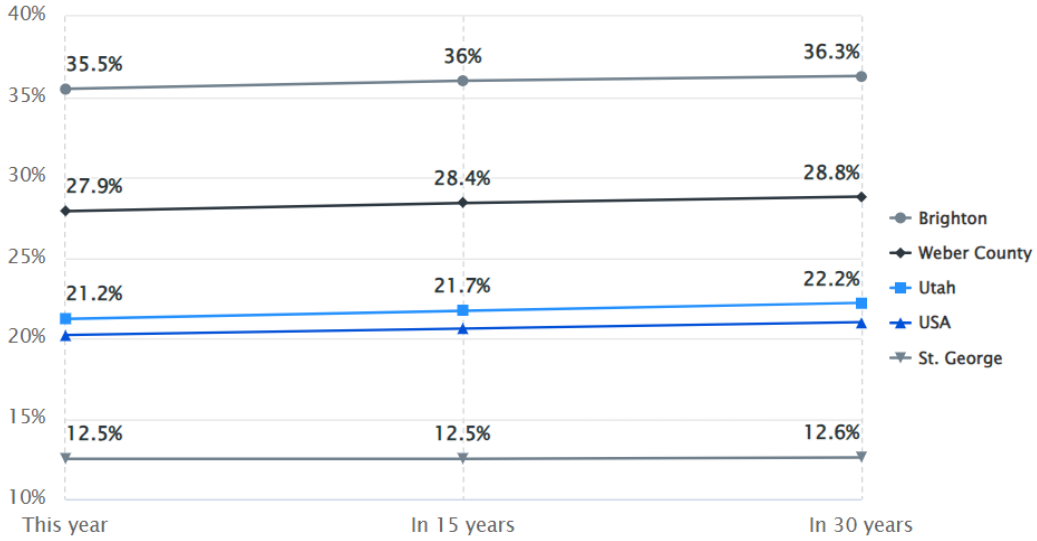


Figure 115: Percent of Properties at Risk of Flooding, Various Comparisons[145]

Weber County has a major risk of flooding, which increases the risk of property damage; cuts off access to utilities, emergency services, and transportation; and may impact the overall economic well-being of an area. The percentages in Figure 115 show the impact on communities and operational risk now, in 15 years and in 30 years, based on property use and flooding depth. This includes special calculations for hospitals, power stations, police stations, fire stations, airports, roads, and other critical infrastructure.

The NRI includes data on the expected annual losses to individual natural hazards, historical loss, and overall risk at the county and census tract levels (see Table 90 and Table 91). Figure 116 provides an overview of each category at the county level.

[145] RiskFactor.com, 2024, "Does Weber County Have Flood Risk?" https://riskfactor.com/county/weber-county/49057_fsid/flood

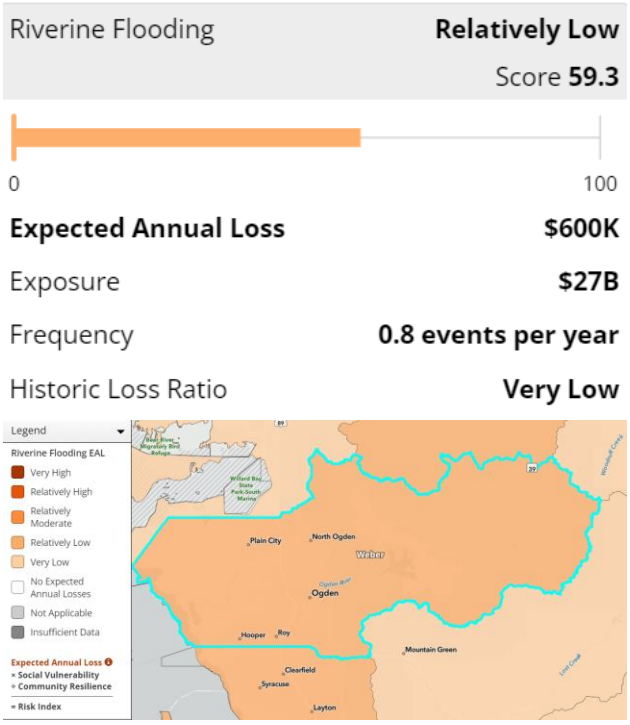


Figure 116: FEMA, National Risk Index, Weber County Expected Annual Loss Riverine Flooding Score, Map, and Legend[146]

Table 90: Expected Annual Loss from Flood, Weber County[147]

Building Value	Population Equivalence	Population	Total
$26,377	$573,209	0.05	$599,857

Table 91: Expected Annual Loss from Flood to Jurisdictions in Weber County[148]

Jurisdiction	Expected Annual Loss	Exposure Loss	Vulnerability Score
Farr West	0	0	0
Harrisville	$26K	$1.2B	Relatively Low
Hooper	0	0	0

[146] FEMA, "National Risk Index, Weber County Expected Annual Loss Riverine Flooding Score, Map, and Legend" Map | National Risk Index (fema.gov)
[147] Ibid.
[148] Ibid.

Jurisdiction	Expected Annual Loss	Exposure Loss	Vulnerability Score
Huntsville	$37	$1.6B	Relatively Moderate
Marriott-Slaterville	$1K	$30M	Very Low
North Ogden	$47K	$2.1B	Relatively Moderate
Ogden	$5.2K	$216M	Relatively Low
Plain City	$7.7K	$345M	Relatively Low
Pleasant View	0	$580	Very Low
Riverdale	$11K	`$476M	Relatively Low
Roy	0	0	0
South Ogden	$6.4K	$292M	Relatively Low
Uintah	$38K	$1.7B	Relatively Moderate
Washington Terrace	$4	$68k	Very Low
West Haven	0	0	0

HAZUS

Vulnerability to flood was modelled using FEMA's Hazards United States – Multi-hazards (HAZUS-MH) program.[149] Vulnerability was assessed using Digital Flood Insurance Rate Maps (DFIRMs) for both 100-year (NFIP Zone A, AE, AO, AH) and 500-year (NFIP Zone B or Zone X (shaded)) flood events. Monetary losses are assessed by participant for both general building stock and critical assets. The model was run using an enhanced inventory including updated essential facilities. There are 107 schools, 21 fire stations, 13 police stations and 2 emergency operations centers in the study region.

Table 92 and Table 93 present information regarding generalized building inventory totals and loss across both flood scenarios. Hazus estimates that about 35 buildings will be at least moderately damaged, and 5 buildings destroyed by the 100-year flood scenario. 136 buildings will be at least moderately damaged and 13 destroyed in the 500-year scenario.

[149] For a more detailed explanation of the loss estimation methodology of HAZUS-MH, please see Part VII or the HAZUS-MH Technical Manual (Flood Model) at www.fema.gov/hazus

Table 92: Direct Economic Loss of Buildings

	100-Year Flood	500-Year Flood
Building Loss	$137,552,000	$284,813,000
Building Value (Exposure)	$42,639,431,000	$42,639,431,000
Buildings	99,499	99,499

Table 93: Total Building Value (Exposure) by Occupancy Type

	Exposure for 100-Year & 500-Year	
Residential	$25,009,217,000	58.7
Commercial	$1,391,239,000	26.7
Industrial	$969,331,000	2.3
Agricultural	$689,620,000	1.6
Religion	$474,389,000	1.1
Government	$212,495,000	.5
Education	$3,893,140,000	9.1
Total	$42,639,431,000	100

Table 94 through Table 98 show the distribution of facilities in the 100-year floodplain by essential facilities, transportation, and utility assets.

Table 94: Facilities in the 100-Year Floodplain by City Participant

Jurisdiction	Essential Facilities	Transportation	Utilities	Total
Farr West	0	0	0	0
Harrisville	1	0	0	1
Hooper	0	0	0	0
Huntsville	0	0	0	0
Marriott-Slaterville	0	2	0	2
North Ogden	0	0	0	0
Ogden	0	9	0	9
Plain City	0	0	0	0
Pleasant View	0	0	0	0
Riverdale	0	1	0	1
Roy	0	0	0	0
South Ogden	0	0	0	0
Uintah	0	0	0	0

Jurisdiction	Essential Facilities	Transportation	Utilities	Total
Washington Terrace	0	0	0	0
West Haven	0	0	0	0
Unincorporated	0	9	2	11
Total	1	21	2	24

Table 95: Facilities in the 100-Year Floodplain by School District Participant

Jurisdiction	Essential Facilities	Transportation	Utilities	Total
Weber School District	1	13	2	16
Ogden School District	0	8	0	8
Total	1	21	2	24

Table 96: Facilities in the 100-Year Floodplain by Water District Participant

Jurisdiction	Essential Facilities	Transportation	Utilities	Total
Bona Vista	1	0	0	1
Pineview—South Ogden	0	0	0	0
Pineview—Weber Box Elder	0	0	0	0
Taylor West Weber	0	0	0	0
Warren—West Warren	0	0	0	0
Total	1	0	0	1

Table 97: Facilities in 100-Year Floodplain by Sewer District Participant

Jurisdiction	Essential Facilities	Transportation	Utilities	Total
Central Weber Sewer	1	5	0	6
Total	1	5	0	6

Table 98: Facilities in 100-Year Floodplain by Fire District Participant

Jurisdiction	Essential Facilities	Transportation	Utilities	Total
North View Fire District	1	0	0	1
Weber Fire District	0	9	2	11
Total	1	9	2	12

Table 99 through Table 103 show the distribution of facilities in the 500-year floodplain by essential facilities, transportation, and utility assets.

Table 99: Facilities in the 500-Year Floodplain by City Participant

Jurisdiction	Essential Facilities	Transportation	Utilities	Total
Farr West	0	0	0	0
Harrisville	1	0	0	1
Hooper	0	0	0	0
Huntsville	0	0	0	0
Marriott-Slaterville	0	3	0	3
North Ogden	0	0	0	0
Ogden	0	10	0	10
Plain City	0	0	0	0
Pleasant View	0	0	0	0
Riverdale	0	1	0	1
Roy	0	0	0	0
South Ogden	0	0	0	0
Uintah	0	0	0	0
Washington Terrace	0	0	0	0
West Haven	0	0	0	0
Unincorporated	0	14	2	16
Total	1	28	2	31

Table 100: Facilities in the 500-Year Floodplain by School District Participant

Jurisdiction	Essential Facilities	Transportation	Utilities	Total
Weber School District	1	19	2	22
Ogden School District	0	9	0	9
Total	1	28	2	31

Table 101: Facilities in the 500-Year Floodplain by Water District Participant

Jurisdiction	Essential Facilities	Transportation	Utilities	Total
Bona Vista	1	0	0	1
Pineview—South Ogden	0	0	0	0
Pineview—Weber Box Elder	0	0	0	0
Taylor West Weber	0	0	0	0
Warren—West Warren	0	2	0	2
Total	1	2	0	3

Table 102: Facilities in the 500-Year Floodplain by Sewer District Participant

Jurisdiction	Essential Facilities	Transportation	Utilities	Total
Central Weber Sewer	1	5	0	6
Total	1	5	0	6

Table 103: Facilities in the 500-Year Floodplain by Fire District Participant

Jurisdiction	Essential Facilities	Transportation	Utilities	Total
North View Fire District	1	0	0	1
Weber Fire District	0	15	2	17
Total	1	15	2	18

The study region contains over 90,000 households and has a total population of 262,158 people. Based on these numbers and anticipated impacts to residential structures, Table 104 indicates the number of individuals expected to be displaced by flooding and those that would seek public shelter.

Table 104: Sheltering Requirements

	100-Year Flood	500-Year Flood
Persons Seeking Shelter	439	683
Displaced Population	1,583	3,855

Table 105 through Table 110 show detailed 100-year flood event loss estimation values for plan participants. Total building losses are estimated at $137.55 Million, which represents 2.64% of the total replacement value of buildings in the scenario. Direct building losses, which includes structure, contents and inventory, total 56.08 million, which is about 41% of total building related losses. The remaining 59% are related to business interruption, or inability to operate a business due to damage sustained during the flood. Hazus estimates that 671 tons of debris will be generated by this scenario, which would require 27 truckloads to remove.

Table 105: Loss Estimation for 100-Year Flood Event by City Participant*

City	Building Loss	Contents Loss	Inventory Loss	Relocation Cost	Income Loss	Rental Income Loss	Wage Loss	Direct Output Loss	Total Loss
Farr West	$0	$0	$0	$1	$3	$0	$7	$65	$11
Harrisville	$1,067	$1,080	$82	$950	$665	$301	$1,124	$2,671	$5,269
Hooper	$170	$132	$65	$60	$19	$16	$7	$73	$469
Huntsville	$829	$550	$81	$80	$138	$22	$103	$298	$1,803
Marriott-Slaterville	$1,144	$1,699	$543	$1,006	$3,859	$652	$2,037	$5,435	$10,940
North Ogden	$2,428	$1,491	$394	$497	$334	$193	$568	$1,771	$5,905
Ogden	$3,279	$5,679	$453	$4,363	$18,008	$2,940	$12,560	$42,574	$47,282
Plain City	$1,374	$1,522	$955	$217	$453	$52	$168	$936	$4,741
Riverdale	$487	$610	$31	$682	$1,681	$414	$1,404	$3,336	$5,309
Roy	$114	$165	$0	$236	$322	$27	$751	$6,489	$1,615
South Ogden	$1,657	$1,034	$13	$295	$259	$131	$254	$625	$3,643
Uintah	$3,128	$1,761	$54	$912	$79	$304	$50	$141	$6,288
West Haven	$691	$1,704	$4	$490	$1,527	$392	$1,568	$3,694	$6,376
Unincorporated	$10,283	$8,409	$919	$2,819	$6,028	$1,345	$8,098	$13,473	$37,901
Total	$26,651	$25,836	$3,594	$12,608	$33,375	$6,789	$28,699	$81,581	$137,552

*Note: Amounts in $Thousands

Table 106: Loss Estimation for 100-Year Flood Event by School District Participant*

School District	Structural Damage	Non-Structural Damage	Building Damage	Contents Damage	Inventory Damage	Relocation Cost	Income Loss	Rental Income Loss	Total Loss
Ogden	$3,200	$5,578	$453	$4,340	$17,908	$2,923	$12,525	$42,477	$46,927
Weber	$23,451	$20,258	$3,141	$8,268	$15,467	$3,866	$16,174	$39,104	$90,625

School District	Structural Damage	Non-Structural Damage	Building Damage	Contents Damage	Inventory Damage	Relocation Cost	Income Loss	Rental Income Loss	Total Loss
Total	$26,651	$25,836	$3,594	$12,608	$33,375	$6,789	$28,699	$81,581	$137,552

*Note: Amounts in $Thousands

Table 107: Loss Estimation for 100-Year Flood Event by Water District Participant*

Water District	Structural Damage	Non-Structural Damage	Building Damage	Contents Damage	Inventory Damage	Relocation Cost	Income Loss	Rental Income Loss	Total Loss
Bona Vista	$3,276	$5,021	$1,502	$1,736	$5,939	$1,113	$3,808	$10,162	$22,395
Hooper	$170	$132	$65	$60	$19	$16	$7	$73	$469
Pineview – South Ogden	$1,210	$757	$12	$225	$225	$112	$255	$700	$2,796
Pineview – Weber/Box Elder	$2,740	$1,664	$420	$473	$335	$186	$544	$1,753	$6,362
Taylor West Weber	$80	$73	$42	$33	$8	$8	$3	$32	$247
Warren/West Warren	$67	$55	$16	$54	$27	$12	$10	$108	$241
Overlap: Bona Vista & Pineview – Weber/Box Elder	$1,138	$1,123	$82	$1,013	$679	$319	$1,159	$2,800	$5,513
Other	$17,970	$17,011	$1,455	$9,014	$26,143	$5,023	$22,913	$65,953	$99,529
Total	$26,651	$25,836	$3,594	$12,608	$33,375	$6,789	$28,699	$81,581	$137,552

*Note: Amounts in $Thousands

Table 108: Loss Estimation for 100-Year Flood Event by Sewer District Participant*

Sewer District	Structural Damage	Non-Structural Damage	Building Damage	Contents Damage	Inventory Damage	Relocation Cost	Income Loss	Rental Income Loss	Total Loss
Central Weber	$12,568	$13,240	$1,106	$8,113	$22,571	$4,643	$17,549	$54,970	$79,790
Other	$14,083	$12,596	$2,488	$4,495	$10,804	$2,146	$11,150	$26,611	$57,762
Total	$26,651	$25,836	$3,594	$12,608	$33,375	$6,789	$28,699	$81,581	$137,552

*Note: Amounts in $Thousands

Table 109: Loss Estimation for 100-Year Flood Event by Fire District Participant*

Fire District	Building Loss	Contents Loss	Inventory Loss	Relocation Cost	Income Loss	Rental Income Loss	Wage Loss	Direct Output Loss	Total Loss
North View	$3,509	$2,601	$502	$1,448	$1,011	$494	$1,696	$4,488	$11,261
Weber	$16,222	$14,221	$1,640	$5,329	$11,596	$2,718	$11,850	$23,089	$63,576
Other	$6,920	$9,014	$1,452	$5,831	$20,768	$3,577	$15,153	$54,004	$62,715
Total	$26,651	$25,836	$3,594	$12,608	$33,375	$6,789	$28,699	$81,581	$137,552

*Note: Amounts in $Thousands

Table 110: Loss Estimation for 100-Year Flood by Building Occupancy Type (rounded)

	Residential	Commercial	Industrial	Others	Total
Total Losses	$40,760,000	$75,730,000	$1,980,000	$19,090,000	$137,550,000

Table 111 through Table 116 show detailed 500-year flood event loss estimation values for plan participants. Total building losses are estimated at $284.81 Million, which represents 4.39% of the total replacement value of buildings in the scenario. Direct building losses, which includes structure, contents and inventory, total 99.68 million, which is about 35% of total building related losses. The remaining 65% are related to business interruption, or inability to operate a business due to damage sustained during the flood. Hazus estimates 1,829 tons of debris would be generated by this scenario, which would require 74 truckloads to remove.

Table 111: Loss Estimation for 500-Year Flood Event by City Participant*

City	Building Loss	Contents Loss	Inventory Loss	Relocation Cost	Income Loss	Rental Income Loss	Wage Loss	Direct Output Loss	Total Loss
Farr West	$0	$0	$0	$1	$3	$0	$7	$65	$11
Harrisville	$1,429	$1,666	$233	$1,271	$1,325	$455	$2,408	$5,190	$8,787
Hooper	$169	$132	$65	$60	$19	$16	$7	$72	$468
Huntsville	$826	$550	$81	$79	$138	$22	$103	$298	$1,799
Marriott-Slaterville	$2,847	$3,314	$1,253	$3,529	$7,565	$1,735	$3,663	$10,936	$23,906
North Ogden	$8,168	$5,067	$509	$2,791	$1,686	$1,013	$2,794	$10,893	$22,028
Ogden	$12,568	$16,657	$1,873	$12,677	$31,391	$7,271	$38,955	$93,528	$121,392
Plain City	$1,599	$1,639	$955	$353	$454	$90	$168	$937	$5,258
Riverdale	$611	$843	$54	$1,636	$4,771	$1,091	$4,951	$11,610	$13,957
Roy	$114	$164	$0	$236	$322	$27	$751	$6,489	$1,614
South Ogden	$1,924	$1,199	$15	$391	$417	$191	$394	$967	$4,531
Uintah	$3,170	$1,782	$54	$932	$80	$309	$50	$141	$6,377
West Haven	$1,201	$2,502	$37	$3,516	$10,756	$2,844	$8,429	$20,287	$29,285
Unincorporated	$12,305	$10,396	$1,712	$4,351	$6,518	$1,756	$8,362	$15,354	$45,400
Total	$46,931	$45,911	$6,841	$31,823	$65,445	$16,820	$71,042	$176,767	$284,813

*Note: Amounts in $Thousands

Table 112: Loss Estimation for 500-Year Flood Event by School District Participant*

School District	Structural Damage	Non-Structural Damage	Building Damage	Contents Damage	Inventory Damage	Relocation Cost	Income Loss	Rental Income Loss	Total Loss
Ogden	$12,489	$16,556	$1,873	$12,654	$31,291	$7,254	$38,920	$93,431	$121,037
Weber	$34,442	$29,355	$4,968	$19,169	$34,154	$9,566	$32,122	$83,336	$163,776

School District	Structural Damage	Non-Structural Damage	Building Damage	Contents Damage	Inventory Damage	Relocation Cost	Income Loss	Rental Income Loss	Total Loss
Total	$46,931	$45,911	$6,841	$31,823	$65,445	$16,820	$71,042	$176,767	$284,813

*Note: Amounts in $Thousands

Table 113: Loss Estimation for 500-Year Flood Event by Water District Participant*

Water District	Structural Damage	Non-Structural Damage	Building Damage	Contents Damage	Inventory Damage	Relocation Cost	Income Loss	Rental Income Loss	Total Loss
Bona Vista	$5,622	$7,502	$2,245	$7,378	$18,874	$4,675	$12,295	$32,256	$58,591
Hooper	$169	$132	$65	$60	$19	$16	$7	$72	$468
Pineview – South Ogden	$6,831	$6,995	$971	$3,797	$6,023	$2,034	$8,325	$30,819	$34,976
Pineview – Weber/Box Elder	$8,279	$5,096	$539	$2,444	$1,471	$840	$2,269	$9,859	$20,938
Taylor West Weber	$434	$331	$112	$523	$69	$141	$24	$268	$1,634
Warren/West Warren	$1,443	$1,118	$397	$969	$241	$265	$92	$919	$4,525
Overlap: Bona Vista & Pineview – Weber/Box Elder	$1,757	$1,888	$236	$1,672	$1,570	$642	$2,973	$6,503	$10,738
Other	$22,396	$22,849	$2,276	$14,980	$37,178	$8,207	$45,057	$96,071	$152,943
Total	$46,931	$45,911	$6,841	$31,823	$65,445	$16,820	$71,042	$176,767	$284,813

*Note: Amounts in $Thousands

Table 114: Loss Estimation for 500-Year Flood Event by Sewer District Participant*

Sewer District	Structural Damage	Non-Structural Damage	Building Damage	Contents Damage	Inventory Damage	Relocation Cost	Income Loss	Rental Income Loss	Total Loss
Central Weber	$26,218	$27,681	$2,865	$21,485	$49,243	$12,327	$57,231	$139,604	$197,050
Other	$20,713	$18,230	$3,976	$10,338	$16,202	$4,493	$13,811	$37,163	$87,763
Total	$46,931	$45,911	$6,841	$31,823	$65,445	$16,820	$71,042	$176,767	$284,813

*Note: Amounts in $Thousands

Table 115 Loss Estimation for 500-Year Flood Event by Fire District Participant*

Fire District	Building Loss	Contents Loss	Inventory Loss	Relocation Cost	Income Loss	Rental Income Loss	Wage Loss	Direct Output Loss	Total Loss
North View	$9,615	$6,770	$775	$4,066	$3,027	$1,468	$5,208	$16,145	$30,929
Weber	$20,491	$18,635	$3,169	$12,426	$25,015	$6,669	$20,598	$47,044	$107,003
Other	$16,825	$20,506	$2,897	$15,331	$37,403	$8,683	$45,236	$113,578	$146,881
Total	$46,931	$45,911	$6,841	$31,823	$65,445	$16,820	$71,042	$176,767	$284,813

*Note: Amounts in $Thousands

Table 116: Losses Estimation for 500-Year Flood by Occupancy Type (rounded)

	Residential	Commercial	Industrial	Others	Total
Total Losses	$79,850,000	$156,150,000	$4,890,000	$43,930,000	$284,810,000

Major flooding can impact the community by displacing residents and business owners; damaging and disrupting infrastructure, including roads and bridges, water treatment facilities, and wastewater treatment facilities; and causing health risks due to contaminated public water supplies and private wells. Heavy rains, severe flooding, or other types of emergency events could damage sewer systems and cause an overflow of untreated wastewater into communities and the environment. Severe flooding can increase the risk to drinking water wells from floodwater contaminated with sewage. In addition, floodwater and standing water can expose vulnerable populations to infectious diseases, chemical hazards, and injuries. Flooded homes may be contaminated with mold or sewage, which can cause health risks.[150] In addition, the current housing availability crisis and rising numbers in habitual homelessness have exposed a growing number of underserved individuals to this hazard. Many unsupported homeless camps are in the flood zones of the Ogden and Weber Rivers. Many individuals congregate in such out-of-the-way locations to avoid scrutiny or contact with law enforcement.

Based on the Nation Risk Index (NRI), Weber County has a relatively low rating, with a risk index score of 56.6 for riverine flood risk, which is lower than the national percentile (see Figure 117).

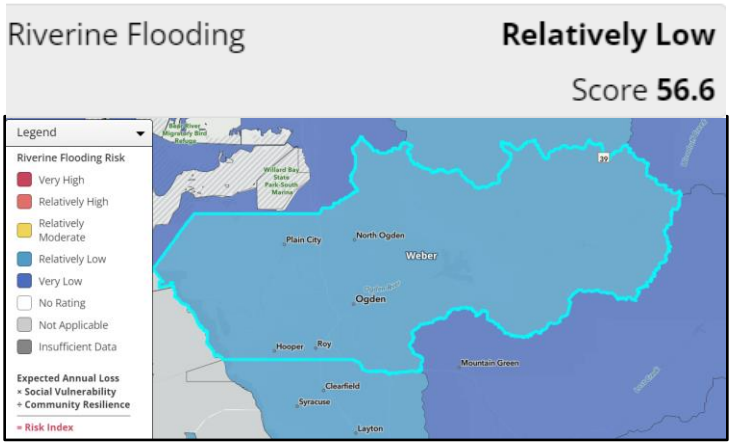


Figure 117: FEMA, National Risk Index Weber County Riverine Flooding Risk Score, Map, and Legend[151]

[150] Center for Disease Control, Floods, 2024, "Guidelines for Septic and Onsite Water Systems." Guidelines for Septic and Onsite Wastewater Systems | Floods | CDC

[151] FEMA, "National Risk Index." https://hazards.fema.gov/nri/map#

REPETITIVE LOSS AND SEVERE REPETITIVE LOSS STRUCTURES

One way to assess risk is to evaluate the location and incidents of the repetitive loss (RL) and severe repetitive loss (SRL) structures. These terms are defined as:

- **Repetitive loss structure** means a structure covered under an NFIP flood insurance policy that (1) has incurred flood-related damage on two occasions, in which the cost of repair, on average, equaled or exceeded 25% of the value of the structure at the time of each such flood event; and (2) at the time of the second incidence of flood-related damage, the contract for flood insurance contains increased cost of compliance coverage. (44 CFR § 77.2(i))
- **Severe repetitive loss structure** means a structure that is covered under an NFIP flood insurance policy and has incurred flood-related damage (1) for which four or more separate claims have been made under flood insurance coverage, with the amount of each claim (including building and contents payments) exceeding $5,000 and with the cumulative amount of such claims payments exceeding $20,000; or (2) for which at least two separate flood insurance claims payments (building payments only) have been made, with cumulative amount of such claims exceeding the value of the insured structure. (44 CFR § 77.2(j))

It should be noted that these structures relate only to National Flood Insurance Program (NFIP) insured properties and may not capture the full extent of repeated flood losses in Weber County. However, they can still provide important information on where flood risk is the greatest. In total, there are 3 repetitive loss structures located in the planning area in Ogden Canyon, a canyon in unincorporated Weber County. They are all single-family residential structures. One structure has been mitigated by demolition. No severe repetitive loss structures have been reported in the planning area.

Table 117: Impacts of Flood by Jurisdiction

Plan Participant Name	Impacts
Weber County	Snowpack/Spring water runoff flooding is the most consistent emergency event in Weber County. These events impact roadways, agricultural lands, water and wastewater infrastructure, homes and private property. Secondary to the primary impacts, cultural and community facilities (parks, rivers, lakes and reservoirs) are closed during these events creating economic loss to the local agencies who manage and maintain these facilities. Individuals may be displaced, injured, or killed due to flooding. Transportation systems may be impacted, isolating individuals until flood waters recede.
Farr West City	Floods could cause hazards to homes, industrial facilities roads, agricultural, ranching, and other properties. The most potential hazards would be to properties near exposed waterways and canals which could be damaged or destroyed. People, particularly those in high-risk areas, could be injured or killed in a flood event.

Plan Participant Name	Impacts
City of Harrisville	The city is affected by excess run-off from neighboring cities at higher elevations, which strains local storm water capacity. Structures including in new residential areas near agricultural land and areas previously affected near 200N and 1925 N can be flooded, resulting in damage or destruction of the structure and economic losses. Agriculture may experience economic losses and livestock may be killed.
City of Hooper	Homes, farmland, animals/livestock, and transportation systems could all be affected by flooding. Disruption or damage to water systems, transportation, and other community lifelines can occur. City storm drain systems are in need of repairs and could fail prematurely. People, including those along transportation routes, could be injured or killed during a flood.
City of Huntsville	A small portion of Huntsville residents may be vulnerable. The city is on a plateau, and most of the floodwater goes around the city. The flood zone includes areas near Pineview Reservoir at full capacity where development is limited. Impacts may be felt most by recreation areas and transportation routes. Further, there may be agricultural and other economic losses.
City of Marriott-Slaterville	Many structures, community lifelines like transportation, and critical infrastructure across the city could be disrupted, damaged, or destroyed due to flooding. Populations, including in many high-risk areas and along transportation routes, could be injured or killed.
City of North Ogden	Roads, storm sewer systems, and homes could be disrupted, damaged, or destroyed. People, including those along transportation routes, could be injured or killed.
City of Ogden	Homes and businesses in low-lying areas, particularly near the Ogden and Weber Rivers, may be damaged or destroyed. Public infrastructure, such as roads and bridges; stormwater drainage systems; and transportation networks, including highways and railroads; could be damaged or destroyed. Residents in flood-prone neighborhoods and communities that rely on agriculture and irrigation systems could be affected. Wetlands and natural habitats are affected by floodwater, which could erode soil and create sedimentation issues. The economy could be affected by agricultural losses, business interruptions, and property damage due to flooded fields.
City of Plain City	Flooding is a high concern, as the Weber River runs through Plain City, and Willard Bay is a 10,000-acre reservoir to the North. Structures and systems including transportation and water systems may be disrupted, damaged, or destroyed. People, particularly near the Weber River and Willard Bay, may be injured or killed during a flood.

Plan Participant Name	Impacts
City of Pleasant View	Roads, residential structures, city buildings, and infrastructure including transportation systems may be disrupted, damaged, or destroyed. People may be injured or killed during a flood.
City of Riverdale	Structures, including the residential area on Riverbed, could be damaged or destroyed. People may be injured or killed.
City of Roy	Damage to roads, flooding of homes and businesses in vulnerable areas, high inflow into the sewer system, which could potentially exceed sewers and lift station capacities, and contamination of waterways. An area of specific concern is neighborhoods along the Howard Slough. People may be injured or killed in a flood.
City of South Ogden	Elderly residents may have difficulty evacuating quickly and face challenges in dealing with the aftermath of floods, such as home repairs and cleaning, which can be physically demanding and financially burdensome. These challenges affect the elderly directly and have a significant impact on the entire community. Flooded roads and bridges can isolate neighborhoods, making it difficult for emergency services to reach elderly residents and for those residents to access essential services, such as medical appointments and grocery stores. Structures may be damaged or destroyed.
City of Uintah	Some structures, particularly those in the high-risk flood zone along the river, may experience minimal flooding, damaging property and contents. People may be injured. Roads along the river may be flooded, disrupting transportation and potentially requiring residents to temporarily relocate.
City of Washington Terrace	Structures may be damaged by flooding. Flood control systems may be overwhelmed. Systems, particularly water and transportation, may be disrupted, damaged, or destroyed.
City of West Haven	All buildings, including public and private structures, and infrastructure such as transportation routes could be damaged or destroyed. Agricultural losses also may occur, resulting in economic losses. Residents may also be injured or killed during a flood.
Pineview Water System	Homes and businesses in the Pineview Water System's service area could be damaged or destroyed. Water systems and other infrastructure like transportation routes also could be damaged or destroyed by flooding. Services may be disrupted while repairs are made. Extensive damage and required repairs could negatively impact public health in the system's service area.

Plan Participant Name	Impacts
Roy Water Conservancy District	District facilities and infrastructure could be damaged by flooding. Services may be disrupted which could impact customers.
Taylor West Weber Water District	District facilities and services could be disrupted by flooding.
Weber Morgan Health Department	Populations within the department's service area may be injured or killed by a flood. Floodwater pose threats to public health.
Ogden School District	Facilities, employees, students, and residents in the boundary area could be harmed by flooding. School activities may be impacted by damage to school facilities or applicable community lifelines such as transportation and energy.
Weber School District	Systems, including transportation routes, could be impacted by a flood. Students and employees could be impacted. These impacts could include disruption, delays, or cancellation of school activities.
West Warren-Warren Water Improvement District	Flooding could damage water pumps, so they would stop working, and culinary water (water that is safe to cook with and drink) would cease to flow in the area. Water lines could be affected by roadway damage. District buildings and equipment would be damaged. Individual water meters and backflow systems would be flooded, and culinary water could be contaminated or otherwise inaccessible.
North View Fire District	Roads, residential structures, city buildings, and infrastructure could be damaged or destroyed. People may be injured or killed during a flood. District staff could also be impacted if they are called upon to respond to a flood event.
Weber Fire District	Systems, including transportation and water systems used by the Weber Fire District, could be disrupted, damaged, or destroyed. People could be injured or killed. Staff may be injured while responding to a flooding event.
Central Weber Sewer Improvement District	Wastewater collection and treatment structures could be damaged. Operations of wastewater collection and treatment facilities could be disrupted. Customers may experience disruptions in services.

Changes in Development

Table 118: Flood Changes in Development Summary

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Weber County	Increased	The current housing availability crisis and rising numbers of habitual homeless have exposed a growing number of underserved individuals to this hazard. Many of the unsupported homeless camps are established along the flood zones of the Ogden and Weber Rivers; due to their out-of-the-way locations, many individuals congregate in these areas in order to avoid scrutiny or contact with local Law Enforcement.
Farr West	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from flooding.
Harrisville	Decreased	The city has completed projects to upgrade infrastructure and decrease flooding risk in certain areas. This includes upgrading a head gate for a detention basin, creating stormwater plans, and ensuring that new developments are not built in at-risk areas. There is still a high risk of flooding from snowpack runoff mixed with heavy spring rains. Upgraded infrastructure is still needed under Highway 89 and under the railway, which runs the length of the city. In May 2024, the Utah Department of Public Safety, Division of Emergency Management, began the Northern Utah Flood Risk Study, a high-level flood hazard risk assessment of 664 stream miles in Weber County using new topography and hydrology information called Base Level Engineering (BLE). Zone A BLE combines high-resolution ground elevation data and modeling technology to create engineering models and flood hazard data, produced at a large scale. The result is 2-dimensional (2D) engineering models and flood hazard data on elevations along each stream reach studied. The assessment will identify water surface elevations that are more accurate and detailed than the historical Zone A's currently on maps. The results will depict areas of risk in both mapped and unmapped areas throughout the study area (Zone A). This analysis can help determine where Flood Insurance Rate Maps (FIRMs) must be updated/developed. The results of this particular analysis will be added to FIRMs as Zone A floodplains. However, it will not

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
		supersede recent Phase II-derived Zone AE floodplains. Additional areas can be used for planning or to leverage available data and information.[152] Results from this study will help local jurisdictions in Weber County implement mitigation measures, decreasing their vulnerability to flooding. **Northern Utah Flood Risk Study:** Phase I: One-year Zone A Base Level engineering, two-dimensional analysis, approximate study to determine where detailed studies are needed. Phase II: 5–7 years Regulatory FIRM update, detailed studies.
Hooper	Increased	More homes have been built that could flood, and city infrastructure in many areas needs upgrading and repair.
Huntsville	Increased	The city is slightly larger due to a new annexation.
Marriott–Slaterville	Increased	The city has increased population and development pressure to build near waterways and flood-prone areas.
North Ogden	Decreased	The city has decreased risk due to enlarged culverts on the 1700 North channel.
Ogden	Increased	New developments by waterways will lead to possible flooding issues. Development in low-lying or previously undeveloped areas increases the risk of flooding. New housing developments and commercial projects should incorporate flood mitigation strategies. Upgrades to the stormwater management system, as outlined in the Stormwater Master Plan, will help mitigate flood risks from new development. The rising population increases the demand for housing, often pushing development into flood-prone areas. Urban sprawl reduces natural absorption areas, increasing surface runoff and flood risk.
Plain City	Decreased	Updated the City Sensitive Land Use Ordinance for building in High Groundwater, Flood Plain, or Wetland areas.

[152] Utah Flood Hazards and Flood Management, "2024 Northern Utah Flood Risk Study: Weber County Project Kick-off," https://floodhazards.utah.gov/flood-mitigation/

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Pleasant View	Decreased	Risk has declined because culverts and ditches have been enlarged since the spring run-off in 2023.
Riverdale	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from flooding.
Roy	Increased	There is an increased risk due to development that has increased runoff volumes. Some areas adjacent to the Howard Slough where there is increased risk of flooding have been developed.
South Ogden	Decreased	The city is working to be more resilient and prepared for all events.
Uintah	Decreased	Risk has declined because the city built up berms along the river.
Washington Terrace	Decreased	The city has improved localized stormwater curbs and gutters to address localized trouble areas.
West Haven	Stayed the Same	Since the last plan update, vulnerability has stayed the same, due to no changes in development.
Ogden School District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from flooding.
Pineview Water System	Increased	There is an increased risk due to the increased population and businesses affected.
Roy Water Conservancy District	Increased	Vulnerability has increased as age of infrastructure increases. Probabilities of a failure and resulting flood increase.
Taylor West Weber Water District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from flooding.

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Weber-Morgan Health Department	Stayed the Same	Since the last plan, there have been no changes in development for the Health Department related to flood hazard.
Weber School District	Decreased	Flood mitigation work since 2011 on the Weber River has decreased vulnerability.
West Warren-Warren WID	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from flooding.
Central Weber Sewer Improvement District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from flooding.
Weber Fire District	Decreased	The public safety community (Fire and Police) has continued to improve its response to flooding, including adding pumps and revising the plans for responding to flooding emergencies.
North View Fire District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from flooding.

SECONDARY HAZARDS

Secondary or cascading impacts from flooding include health risks from exposure to raw sewage in flood waters, electrical fires caused by flood waters knocking down electrical poles, and the overspilling of gas in underground tanks.

Invasive Species

An invasive species is a non-native organism that is introduced into an ecosystem and causes harm to the environment, economy, or human health. These species—which can be plants, animals, or microbes—can outcompete native species for resources, such as food, water, and habitat, leading to biodiversity loss. Invasive species can also damage crops, forests, and infrastructure and spread diseases to humans and wildlife. They often have no natural predators in their new environment, which allows them to reproduce and spread rapidly. Controlling and eradicating invasive species can be difficult and costly, so prevention is the best approach for mitigating the impacts of these species. Table 119 lists the most common invasive pest species that threaten Weber County.

Table 119: Invasive Pests Weber County

Image	Name	Description
	Woodboring Bark Beetle/Poplar Beetle	Woodboring bark beetles, including the poplar borer, feed on the inner bark of trees, leading to weakened structures and increased susceptibility to other pests and diseases. They lay their eggs in the bark, and their larvae create tunnels in the wood, causing significant damage to agriculture and the forests, especially coniferous forests. Poplar borers commonly attack quaking aspen and other poplars in Utah, leading to tree decline, weakened branches, and increased susceptibility to pathogens.[153]
	Western Cherry Fruit Fly	The western cherry fruit fly is known to infest cherries and other fruits. Its larvae feed on the fruit, causing damage and rendering it unsuitable for consumption or sale. This pest seriously threatens cherry and other fruit crops in Weber County and can lead to significant economic losses for growers and producers. Various methods are used to control infestations, including monitoring and trapping, using insecticides, and implementing quarantine measures to prevent the spread of the fly to new areas.[154]
	Apple Maggot	The apple maggot is a stage of a fly that is native to North America and is a serious threat to the agricultural industry in areas where apple trees are grown. Adult flies lay their eggs on the surface of the fruit, and when the eggs hatch, the maggots feed on the

[153] Utah State University, "Poplar Borer." https://extension.usu.edu/pests/research/poplar-borer
[154] Utah State University, "Western Cherry Fruit Fly in Utah Orchards." https://extension.usu.edu/pests/research/western-cherry-fruit-fly

Image	Name	Description
		flesh of the apple, causing it to rot. This can cause significant damage to the fruit and can lead to a decrease in crop yields. Farmers take various measures to control its population.[155]
	Velvet Long-horned Beetle	The VLB attacks fruit, forest, landscape trees and green and dry wood lumber. It originated in Asia and Russia and was found in Quebec in 2002. Since then, its reach has expanded to several states, including Utah. VLB is currently found in some orchards and ornamental landscapes and along natural waterways in Box Elder, Davis, Salt Lake, Summit, Tooele, Utah, and Weber counties. The pest spreads through infested wood packing material used for imported commodities, such as machinery, building supplies, glass, tools, and tiles.[156]

Table 120 provides a comprehensive list of non-native insects that have successfully established themselves in Utah and are harming the state's economy and environment. These pests have been introduced to Utah accidentally or intentionally. Although they are not necessarily classified as "invasives," they threaten Utah's agriculture, forestry, and natural resources. Therefore, it is crucial to take appropriate measures to monitor and manage them effectively.

Utah's trees are vulnerable to invasive pests that can cause serious damage and even death. Dutch elm disease affects American and European elm trees and is spread by bark beetles. Emerald ash borer, which attacks ash trees, is native to Asia and was first discovered in Michigan in 2002. Thousand cankers disease, which impacts black walnut trees, is spread by walnut twig beetles. It is important to be aware of these diseases and their associated pests to help protect Utah's trees and forests.

[155] Utah State University, "Apple Maggot." https://extension.usu.edu/pests/research/apple-maggot
[156] Utah State University, "Invasive Pests of Landscape Trees in Utah." https://extension.usu.edu/pests/files/pubs/invasive-landscape.pdf

Table 120: Newly Established Invasive Insects, Utah[157]

Image	Name	Description
	Balsam Wooly Adelgid	The BWA, a tiny insect, can be hard to detect because of its small size. Infestations appear as white wooly masses, which are most visible in the fall. Subalpine fir is the main host in Utah. Symptoms include branch flagging, canopy decline, and tree death within 2–10 years of infestation. The USDA Forest Service Forest Health Protection team in Ogden first detected and confirmed BWA in 2017 in Farmington Canyon near the Powder Mountain Ski Resort. It is now confirmed in Box Elder, Cache, Rich, Weber, Morgan, Davis, Summit, Salt Lake, Wasatch, and Utah counties.
	Brown Marmorated Stink Bug	The BMSB is a pest for crops and homeowners in over 47 US states. It first appeared in Utah in 2012 and has been found in various counties, including Weber. The adults are 1/2 inch long and have a light and dark banding pattern. BMSB feeds on vegetation and fruit, causing damage to crops. It is not harmful to people, pets, or buildings.
	Elm Bark Beetles	The Banded elm bark beetle (BEBB) and the European elm bark beetle (EEBB) damage elm trees in North America and are considered widespread in Utah, Colorado, Kansas, and New Mexico. They have spread Dutch elm disease, devastating native elm populations since the 1930s. BEBB is native to Asia and Russia, while EEBB is native to Europe. These beetles primarily attack elm trees, including American elm, Siberian elm, English elm, and rock elm. BEBB also attacks other woody species, including Russian olive, weeping willow, and fruit trees, such as pear, apple, and Prunus species. EEBB attacks Japanese zelkova and poplar. BEBB prefers Siberian elm over American elm. Young and healthy elm trees are less susceptible to attacks.

[157] Utah State University, "Top 5 Newly Established Invasive Pests." https://extension.usu.edu/pests/invasives/top-five-established

Image	Name	Description
	Elm Seed Bug	The Elm Seed Bug is an invasive European pest first reported in Utah in 2014. It is now widely distributed along the Wasatch Front and Cache County, with reports west to Duchesne County, east to Tooele County, and south to Grand County. These bugs are about 1/4 inch long and look like boxelder bugs. They mainly feed on elm seeds but are considered a nuisance pest, as they can form large groups inside and outside buildings. When mishandled, they emit a foul odor and may stain lightly colored materials with fecal material.
	Plum Curculio	Plum curculio is a quarantine pest in western North America, with the only known infestation in Box Elder County. Females lay eggs in fruit cavities, which hatch into legless grubs that develop in the fruit flesh. Adults feed on fruit by chewing small holes and causing damage by laying eggs. Larvae tunnel into the fruit flesh, making it unfit for consumption. This poses a significant threat to Utah's fruit industry and requires continuous monitoring and management to keep export markets open.
	Walnut Twig Beetle & Thousand Cankers Disease	Thousand cankers is a disease that affects walnuts. It is caused by a fungus that spreads through the walnut twig beetle. The beetle is commonly found in Arizona, New Mexico, and Chihuahua, Mexico. It was first discovered in Utah in 1988. The disease has led to widespread mortality of black walnut trees in several US states, including California, Colorado, Oregon, and Washington. The fungus kills black walnut, English walnut, and hybrids of both, and trees typically die within three years of visible symptoms. The main threat is to walnut production areas and native walnut habitats. Symptoms include wilting and yellowing foliage, thinning tree crowns, and tree mortality.

Invasive species can significantly impact an economy that relies on trees. These species can outcompete native trees for resources, leading to a decline in the health and productivity of the forests. This, in turn, can harm industries such as logging and tourism that depend on healthy forests. In addition, the cost of controlling invasive species through chemical treatments or removal can be significant, further impacting the local economy. Table 121 describes tree diseases prevalent in Utah.

Table 121: Tree Diseases in Utah, Not Specifically Weber County[158]

Image	Name	Description
	Dutch Elm Disease	DED is caused by fungi spread by elm bark beetles or root-to-root contact. It was discovered in the Netherlands in 1921 and. in Ohio in the 1930s. It was first recorded in Utah in 1982. It likely arrived in the U.S. on shipments of elm logs from France and is now widespread in North America. Three elm bark beetles—the native elm bark beetle, the European elm bark beetle, and the banded elm bark beetle—spread DED fungi. Only the European and banded elm bark beetles cause DED in Utah.
	Thousand Cankers Disease	TCD is a fatal disease that affects walnut trees. It is caused by a fungus spread by the walnut twig beetle, which is native to Arizona, New Mexico, and Chihuahua, Mexico. TCD gets its name from the cankers around the beetle galleries in the bark and phloem. The disease has spread to several US states, including Utah, affecting black walnuts, California walnuts, and English walnuts, while Arizona walnuts are resistant.

Figure 118 shows the locations of noxious weed populations in Weber County. Each colored dot is a different species. The blue polygons represent the treatment sites for 2023.

[158] Ibid.

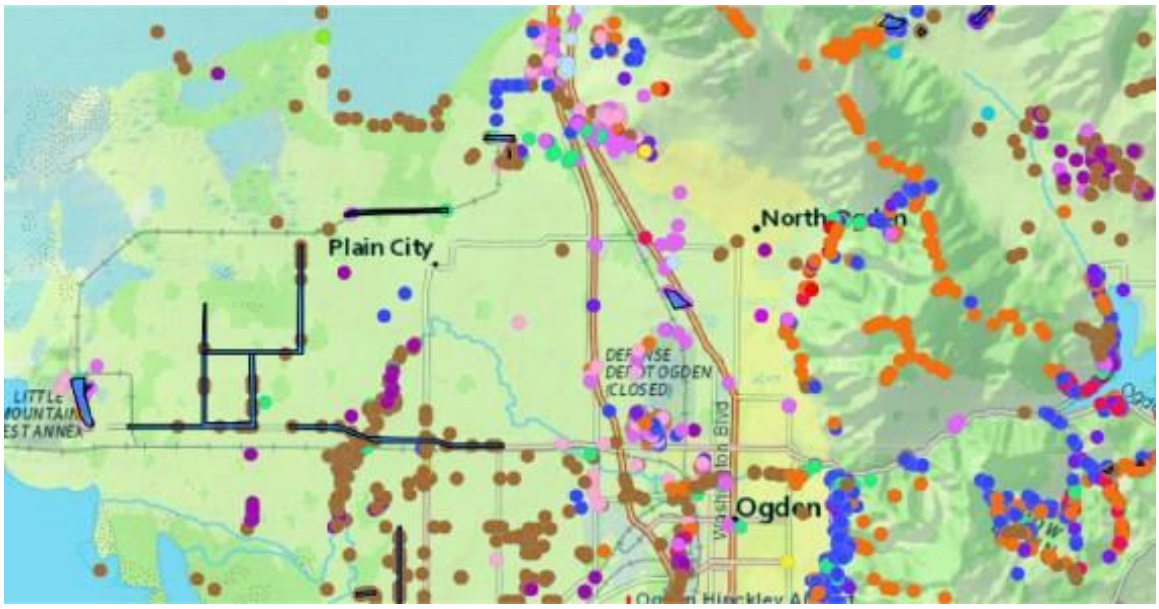


Figure 118: Noxious Weeds in Weber County, 2023[159]

Noxious weeds are a serious problem, as they are invasive plant species that can cause significant harm to the environment, economy, and human health. These weeds can outcompete native species for resources such as water and soil nutrients, alter natural ecosystems, and reduce biodiversity. They can also impact agricultural productivity by reducing crop yields and contaminating animal feed. Furthermore, some of these weeds can cause allergic reactions in humans and animals, and some are toxic to livestock. Therefore, it is essential to control the spread of noxious weeds to maintain the health and balance of ecosystems and protect agricultural industries.

In April 2016, an amendment to the Utah Noxious Weed Act underwent introduced an updated categorization of weeds, based on preventive or management measures to address the problem of noxious weeds. Essentially, the amendment allows for a more nuanced approach to dealing with noxious weeds, as different types of weeds may require different management techniques or prevention methods. This change aims to improve the effectiveness of efforts to control and eliminate noxious weeds in Utah. Table 122 lists the categories of noxious weeds in Utah.

Table 122: Classifications of Noxious Weeds in Utah by Type of Response[160]

Class	Response
IA	Early Detection Rapid Response (EDRR)/Watch List: Plants not known to be in Utah but thought to be present in neighboring states. If found in the state, the swift eradication of plants in this category is a high priority.

[159] Weber County Connection, "Noxious Weeds of Weber County." https://webercountyconnection.com/2023/05/29/noxious-weeds-of-weber-county/
[160] Utah State University, "Noxious Weed Field Guide for Utah." https://digitalcommons.usu.edu/extension_curall/1352/

Class	Response
IB	Early Detection (ED): Plants that occur in Utah at very low levels. It is a high priority to eradicate all known populations and prevent new ones.
II	Control: Plants that have a reasonable distribution in Utah but do not occur everywhere should be given a high priority for control.
III	Contain: Plants widely distributed in Utah. To halt their spread, the current populations of these plants should be contained. These plants should not enter commercial channels.
IV	Prohibited: Plants that are present in Utah appear to be arriving in nursery stock/seed and are being sold as ornamentals. This is now illegal.

Table 123 lists the noxious weeds with the greatest impact in and to Weber County.

Table 123: Invasive Weeds, Weber County[161]

Image	Name	Description
	Yellow Starthistle	This European plant grows well in dry areas like rangelands, roadsides, and wastelands. It causes a deadly neurological disease in horses called "chewing disease." It is blue-green in color and has deeply lobed rosette leaves, winged stems with sparse leaves, yellow flowers, and cream-colored thorns that protrude from its flowering heads. It blooms in the early summer.[162]
	Purple Loosestrife	This flowering plant, native to Europe and Asia, was introduced to North America in the 1800s as an ornamental plant and for medicinal purposes. However, it has become an invasive species and is now considered a threat to wetlands and other natural ecosystems. It can grow up to 8 feet tall and produces large spikes of purple flowers. Its rapid growth and ability to outcompete native plants can lead to a loss of biodiversity and negatively impact wildlife habitats. Efforts are being made to control and eradicate purple

[161] Weber County Utah, "Weber County Weed Control." https://www.webercountyutah.gov/weeds/#:~:text=The%20noxious%20weeds%20with%20the,whitetop%2C%20burdock%2C%20and%20houndstongue.
[162] Utah State University, "Noxious Weed Field Guide for Utah." https://digitalcommons.usu.edu/extension_curall/1352/

Image	Name	Description
		loosestrife, including herbicides and biological control methods.[163]
	Phragmites	The non-native version of common reed (Phragmites australis) was introduced to North America from Eurasia in the late 1700s to early 1800s. It is an aggressive, tall, dense wetland grass that crowds out native vegetation. In Utah, it has colonized vast areas around Great Salt Lake and other wetlands, resulting in a loss of habitat for wildlife and access by people. It is also found in smaller wetland areas at the urban–rural interface. Controlling small urban populations is important in reducing the spread of this weed.[164]
	Dyer's Woad	Dyer's woad (Isatis tinctoria) was brought to Utah in the 19th century as a source of indigo dye. However, the plant escaped and spread rapidly throughout the Intermountain West, affecting rangelands, foothills, and other sites. It can outcompete native plants and disrupt natural ecosystems. It produces prolific seeds and can quickly spread, causing significant damage to crops and pasturelands. In addition, it contains toxic chemicals that can be harmful to livestock that graze on it.[165]
	Puncturevine	This annual plant grows close to the ground and is considered a nuisance because it produces spiny fruits that can harm animals and cause flat tires. It is also toxic to livestock and difficult to manage because of its continuous germination during the summer.[166]

[163] Weed Control Handbook, "Purple Loosestrife." https://ucanr.edu/sites/wric3/files/326233.pdf
[164] Utah State University, "Phragmites Control at the Urban/Rural Interface." https://digitalcommons.usu.edu/extension_curall/689/
[165] Utah State University, "Identifying and Managing Dyer's Woad (Isatis tinctoria) in Pastures, Rangelands, and Non-Crop Settings." https://digitalcommons.usu.edu/extension_curall/2200/
[166] Utah State University, "Puncturevine (Tribulus Terrestris) Identification and Management for Gardens, Lawns, and Pasture." https://digitalcommons.usu.edu/extension_curall/2062/

Image	Name	Description
	Dalmatian Toad-flax	This highly invasive creeping perennial weed, which grows up to 4 feet tall, was brought from Europe for ornamental purposes. It thrives in sandy rangelands and roadside habitats and has deep roots and a thick, waxy leaf cuticle that makes it hard to control. It reproduces from seed and rootstock and blooms with yellow flowers from late spring to summer. It is considered a noxious weed, as it can displace native plant species and reduce biodiversity, and it is toxic to some livestock.[167]
	Myrtle Spurge	This toxic plant, native to Eurasia is considered a weed in gardens, dry natural hillsides, waste areas, and public lands. It thrives in sandy, rocky, and nutrient-poor soils and is drought tolerant. Despite its toxicity, it is sold as an ornamental. This herbaceous perennial has short-lived fleshy stems, grayish-blue leaves, and yellow-green bracts that cup tiny flowers. The plant ejects seeds up to 15 feet away and regenerates from root fragments. It is toxic to both animals and humans.[168]
	Leafy Spurge	This highly invasive plant from Eurasia is found in pastures, rangelands, waste areas, and stream banks. It is toxic to cattle and can grow up to 3 feet tall. It has narrow leaves and yellow-green flower bracts in late spring. Seeds are found in a three-celled capsule that can shoot up to 15 feet away. The plant has an extensive root system—up to 20 feet long and 14 feet deep, with shoot-producing buds that make it difficult to control.[169]
	Hoary Cress/ Whitetop	This European plant grows in disturbed areas and blooms in late spring. It prefers saline soils and can outcompete native plants, reducing biodiversity and making it difficult for other plant species to survive. This noxious weed is difficult to control because of its deep roots, and it contains toxic compounds that can cause illness in livestock and wildlife. As a result, it

[167] Utah State University, "Noxious Weed Field Guide for Utah." https://digitalcommons.usu.edu/extension_curall/1352/
[168] Ibid.
[169] Ibid.

Image	Name	Description
		poses a serious threat to agriculture, grazing lands, and natural habitats.[170]
	Burdock	This plant is known for its burs, which stick to clothing, fur, and skin, making it easy for the plant to spread. It is considered noxious because it can overpopulate and disrupt ecosystems. However, burdock is a great source of nectar for pollinators and has some medicinal uses.[171]
	Houndstongue	This toxic biennial plant, native to Europe, thrives in disturbed soils along roadsides, trails, pastures, and rangelands. Its bur-like seeds attach to clothing or animal fur, spreading it along travel corridors. It can grow up to 4 feet tall and has hairy and curled leaves and reddish-purple flowers that bloom in early summer.[172]

The 2023 Invasive Species Mitigation Grant program provides funding to organizations and individuals working to control and mitigate the impacts of invasive species. It can support various activities, such as invasive species removal, habitat restoration, research on invasive species management strategies, and public outreach and education initiatives, with the aim of reducing the spread and impact of invasive species and protect native ecosystems.[173] The following species were added to the grant in 2023:

- Dyer's woad
- Yellow star-thistle
- Japanese knotweed
- Phragmites
- Garlic mustard:[174]

[170] Ibid.
[171] Utah State University, "Urban Edibles: Weeds." https://digitalcommons.usu.edu/extension_curall/1147/
[172] Utah State University, "Noxious Weed Field Guide for Utah." https://digitalcommons.usu.edu/extension_curall/1352/
[173] Ambrook, "Utah Invasive Mitigation Program Application." https://ambrook.com/funding/ut-invasive-species
[174] Weber County Connection, "Noxious Weeds of Weber County." https://webercountyconnection.com/2023/05/29/noxious-weeds-of-weber-county/

Location

Due to their varying variety and characteristics, noxious weeds and invasive pests are in various locations, including forests, agricultural lands, waterways, and urban areas. They can also be introduced from other regions or countries through trade, travel, and accidental transportation. Once established, these species can spread rapidly and cause significant ecological and economic damage. Figure 119 show the locations of noxious weeds in Weber County.

Several factors can make one area of the United States more susceptible to noxious weeds and invasive pests than another. One of the primary factors is the presence of suitable habitat for these species. Noxious weeds and invasive pests often thrive in disturbed or degraded habitats, such as areas cleared for development or agriculture. In addition, areas with a high level of international trade or travel may be more likely to be exposed to new invasive species introduced from other regions or countries.

Other factors contributing to an area's susceptibility to noxious weeds and invasive pests include climate conditions, land use practices, and the presence of key host plants or other resources that these species require to thrive. For example, areas with warmer and wetter climates may be more likely to experience outbreaks of noxious weeds and invasive pests that require such conditions to reproduce and spread.

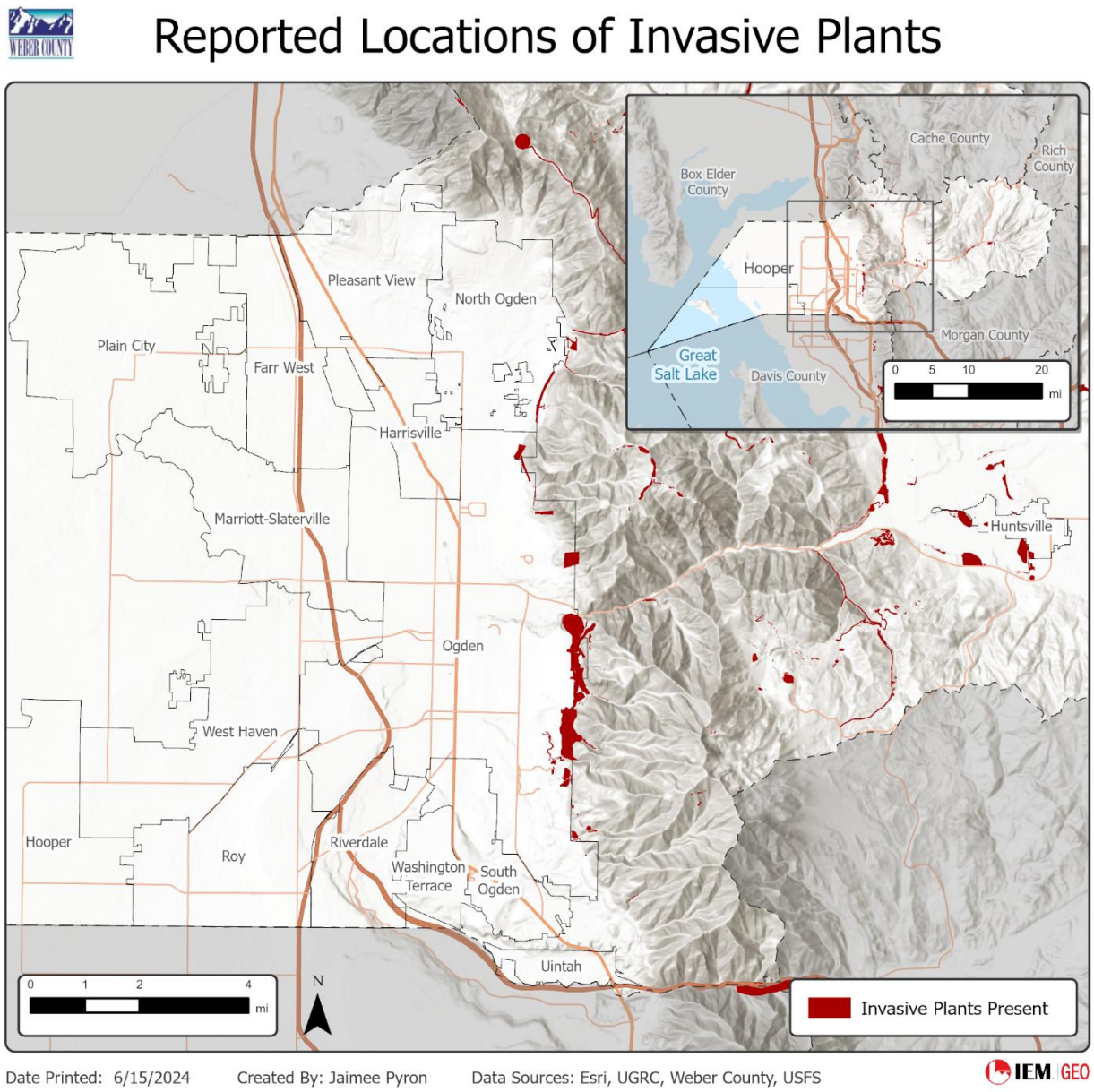


Figure 119: Weber County Reported Locations of Invasive Plants

Magnitude/Extent

There is no standardized magnitude or extent scale for invasive species similar to those used for natural hazards like earthquakes or floods. However, invasive species impacts can be described and assessed based on various factors that influence their spread, severity, and consequences.

The intensities of invasive pests can vary widely depending on factors such as the specific pest or disease, geographical location, environmental conditions, and the effectiveness of public health interventions. Their impacts generally range from sporadic and mild to widespread outbreaks with severe consequences.

Vector-borne illnesses can negatively affect human health, create economic burdens, and strain healthcare systems. The specific range of intensities depends on factors such as the population's susceptibility, the availability of medical resources, and the implementation of preventive measures.

The intensities of noxious weeds can vary widely, depending on the specific ecosystem and species involved. Their impacts generally range from localized and minimal to widespread and severe. Noxious weeds can negatively affect native vegetation, disrupt ecosystems, reduce biodiversity, and even impact agricultural productivity. The specific range of intensities depends on factors such as the type of invasive species, the resilience of the native ecosystem, and the effectiveness of pest management efforts.

Invasive Species can affect many areas in Weber County. Jurisdictions that have indicated they have no risk from invasive species include Huntsville, North Ogden, Ogden, Ogden School District, Uintah, West Haven, Taylor West Weber Water District, Central Weber Sewer Improvement District, and North View Fire District.

Previous Occurrences

Weber County has experienced several invasive species in recent years. One example is the Russian olive tree, which was introduced to the area as an ornamental plant but has since spread rapidly and become a nuisance. This tree has a high tolerance for drought and can outcompete native species, leading to a decline in biodiversity. Another invasive species in Weber County is the Tamarisk tree, also known as Saltcedar. This tree was introduced to the area in the early 1900s to help control erosion along riverbanks and has since spread to other areas. Tamarisk trees can consume large amounts of water, negatively impacting the water supply for native plants and animals.

In 2018, several Utah counties reported Mormon cricket and grasshopper infestations. Some farmers and ranchers experienced high grasshopper populations (50–70 per sq. yd.), causing damage to cropland in the central portion of the state, where such populations historically persist. Private landowners experienced the highest grasshopper populations, with 291,431 infested acres. Federal property was second, with 182,950 infested acres. Table 124 displays the acreage destroyed by the infestation of grasshoppers in Weber County from 2008 to 2018.

Table 124: Grasshopper Infestation in Weber County, 2008–2018 [175]

2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
1144	0	7461	1280	9162	0	0	0	0	2747	6849

[175] Utah Department of Agriculture and Food, "2018 Utah Mormon Cricket and Grasshopper Report." https://ag.utah.gov/documents/2018UtahMormonCricketandGrasshopperReport.pdf

According to the 2023 Insect Report for Weber County from 2021 to 2023, the infested acres of Mormon crickets were moderate to low; the exact numbers were not provided.[176]

In Utah and many other states, controlling invasive species of pests and noxious weeds has always been a challenging task. These non-native species were introduced to the state accidentally through transportation or shipping or deliberately by people who brought them in for ornamental or agricultural purposes. Invasive species can severely impact the local ecosystem and cause significant damage to the environment, agriculture, and human health. Therefore, the state of Utah has implemented various measures to prevent the introduction of invasive species and to control their spread. These measures include monitoring and inspecting incoming shipments, public education campaigns, and biological and chemical control methods. Despite these efforts, invasive species remain a significant threat to Utah's natural resources, and continued vigilance is necessary to prevent further ecological damage. Figure 120 shows where weeds exist, have been treated, and have been eradicated. Figure 121 shows the numbers of acres where weeds remain (positive), have been treated, and have been eradicated. Figure 122 shows a specific response: controlling Phragmites on Ogden Bay.

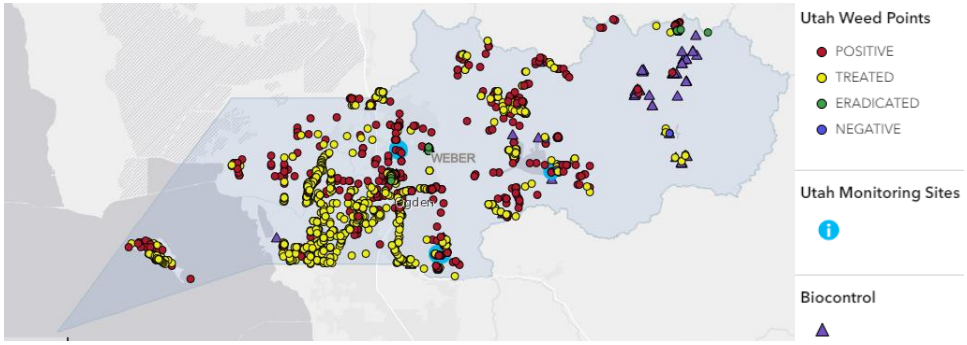


Figure 120: Weber County Weed Points[177]

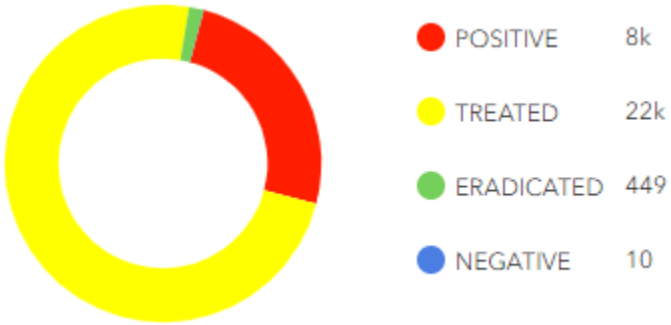


Figure 121: Total Number of Acres per Category[178]

[176] Utah Department of Agriculture and Food, "2023 Insect Report." https://ag.utah.gov/wp-content/uploads/2024/05/2023-Insect-Report-Web-Edition-C.pdf
[177] Utah Department of Agriculture and Food, "Noxious Weed Dashboard." https://experience.arcgis.com/experience/9167476b46ad44569a6c02f41d311ffd
[178] Ibid.



Figure 122: Controlled Burn of Phragmites on Ogden Bay in Weber County, April 12, 2024[179]

Probability of Future Occurrences

Due to their pervasive nature, invasive species are an ongoing concern in certain parts of Weber County. Therefore, this hazard is **Highly Likely**. It is difficult to determine the exact probability of future invasive species in Weber County, as they can be influenced by various factors, such as human activity, climate change, and global trade. Climate change can create new habitats for invasive species and weaken the ability of native species to resist invasions.

As global temperatures rise and precipitation patterns change, the chances of invasive species taking hold in Weber County are likely to increase. Every year, invasive pests and weeds are introduced through imported goods, the transportation of goods and people, natural dispersion, and accidental release of non-native species, and although some species are eradicated, new species continue to be introduced.

Vulnerability Analysis

Invasive species represent a pervasive problem which will continue to threaten vulnerable assets, including agriculture, in the future.

[179] ABC4, "Heavy Smoke Fills Weber County as Authorities Scorch Phragmites in Controlled Burn." https://www.abc4.com/news/northern-utah/heavy-smoke-fills-weber-county-as-authorities-scorch-phragmites-in-controlled-burn/

Table 125: Invasive Species Vulnerability Assessment

Plan Participant Name	Asset Type	Description
Weber County	Structures	Structures and community lifelines are not likely to be significantly impacted by this hazard.
	Systems	Water systems could be affected if invasive species get into the system.
	Populations	People exposed to invasive species, especially those with allergies to noxious weeds, are vulnerable to negative health impacts including allergic reactions.
	Other	The natural environment, including the western wetland areas of Weber County around the Great Salt Lake and the upper, is vulnerable to this hazard. Agriculture and traditional range and grazing areas for animals such as deer and elk are also at risk.
Hooper	Structures	Same as County
	Systems	Same as County
	Populations	Same as County
	Other	Invasive species could harm crops, which could affect the health and economy of the city.
Harrisville	Structures	Same as County
	Systems	Same as County
	Populations	Same as County
	Other	Trees, including in City-owned parks and recreational facilities, could be at risk from invasive species.
Marriott-Slaterville	Structures	Same as County
	Systems	Same as County

Plan Participant Name	Asset Type	Description
	Populations	Same as County
	Other	Invasive species could contribute to crop failure.
Pleasant View	Structures	Same as County
	Systems	Natural systems
	Populations	Same as County
	Other	City-wide prospect of invasive species, particularly in open space, wetland, and pond areas.
Riverdale	Structures	Same as County
	Systems	Riverdale Trail System could be impacted by invasive species.
	Populations	Same as County
	Other	None
Roy	Structures	Same as County
	Systems	Same as County
	Populations	Same as County
	Other	None
South Ogden	Structures	Same as County
	Systems	Same as County
	Populations	May pose significant health risks, particularly to the elderly who may have weaker immune systems. May lead to disease outbreaks such as West Nile Virus that may disproportionately affect vulnerable populations.
	Other	None

Plan Participant Name	Asset Type	Description
West Haven	Structures	Same as County
	Systems	Same as County
	Populations	Same as County
	Other	Risk is mostly to agriculture with some potential impacts to residential vegetation.
Pineview Water System	Structures	Same as County
	Systems	Invasive plans can contribute to diminished pipe size and clogging.
	Population	None
	Other	None
Roy Water Conservancy District	Structures	None
	Systems	Invasive species can get into water systems and clog pipes.
	Population	None
	Other	None
Weber Morgan Health Department	Structures	None
	Systems	None
	Population	Impacts to vulnerable populations when invasive species cause related health conditions
	Other	None
West Warren-Warren Water	Structures	Rodents can damage equipment in district building.

Plan Participant Name	Asset Type	Description
Improvement District		
	Systems	Water pumps, meters, water lines can be damaged by burrowing animals or rodents. Rodents can also damage mechanical equipment.
	Populations	Residents would be affected by interruptions in delivery of water.
	Other	None
Weber Fire District	Structures	Same as County
	Systems	Does not affect district directly, but may affect agricultural lands within service area.
	Populations	None
	Other	None

Impacts

Introducing an invasive species can devastate an endemic species—a species native to a particular area and found nowhere else in the world. When an invasive species enters the habitat of an endemic species, it can compete for essential resources, such as food, water, and shelter. This often reduces the population of the endemic species and it can lead to its extinction. Invasive species can also disrupt the balance of an ecosystem by changing the food web, reducing biodiversity, and altering the physical environment. This can have severe consequences for other species and the overall health of the ecosystem.

The impact of an invasive species invasion can be significant on a community's economy, infrastructure, and people. Invasive species can damage crops and forests, resulting in economic losses for farmers and the timber industry. They can also damage structures such as roads, bridges, and buildings, leading to costly repairs and maintenance. Invasive species can harm human health by spreading diseases and causing allergies.

Moreover, invasive species invasions can have long-term effects on an ecosystem, ultimately impacting its economy and infrastructure. For instance, if an invasive species harms a community's forests, it can affect

timber availability for many years. In addition, if an invasive species alters a community's ecosystem, it can affect the availability of natural resources and the ability to sustain certain industries in the long term.

Invasive species can also affect a community's culture and quality of life. For example, if an invasive species damages a community's parks and recreational areas, it can impact the community's ability to enjoy these spaces and tourism. Invasive species can also affect the availability of traditional foods and medicines, impacting a community's cultural practices.

Table 126: Impacts of Invasive Species by Jurisdiction

Plan Participant Name	Impacts
Weber County	Phragmites in the western wetland areas of Weber County around the Great Salt Lake create significant damage to natural plants and wetland environments that migratory birds rely on during their annual visits to Weber County. The introduction of Dyer's Woad to the upper valley has significantly impacted agricultural production as well as traditional range and grazing areas for natural habitats such as deer and elk.
City of Harrisville	Non-native plants and animals establish themselves in our local ecosystems and outcompete and dislodge species that have evolved specifically to live there. Trees, particularly in City-owned parks and recreational facilities, may be killed. Recreation areas may be impacted.
City of Hooper	Invasive species can harm crops, which would have economic impacts on the city.
City of Marriott-Slaterville	Crop failure is a risk, along with economic impacts.
City of Pleasant View	City-wide prospect of invasive species, particularly in open space, wetland and pond areas. Environmental damage, including loss of native species, can be expected.
City of Riverdale	Native plants could be pushed out, and parts of the city like the Riverdale trail system could be taken over by invasive species.
City of Roy	Native plants may die off as competition increases. Invasive species may expand across the city. Water systems could be damaged and people experience allergies.
City of South Ogden	Invasive species, such as mosquitoes carrying West Nile Virus, can pose significant health risks, especially to older adults and those with weaker immune

Plan Participant Name	Impacts
	systems. Introducing such species can lead to outbreaks of diseases that disproportionately affect vulnerable populations.
City of West Haven	Agriculture and water supply may be damaged and residential vegetation may be killed by invasive species. Economic impacts may occur.
Pineview Water System	There is a risk of diminished pipe size and clogging. Damage to pipes may result in disruption of services.
Roy Water Conservancy District	Invasive species can clog pipes, contributing to disruption in services or maintenance costs.
Weber Morgan Health Department	Invasive species, such as mosquitoes carrying West Nile Virus, can pose significant health risks, especially to older adults and those with weaker immune systems. Introducing such species can lead to outbreaks of diseases that disproportionately affect vulnerable populations.
Weber School District	School grounds and fields, and district-owned properties have a minimal risk to invasive species. All high school football fields now have artificial turf. District properties are closely maintained by custodial and facilities employees. Current invasive species are managed. Vulnerability is subject to a great community problem and the introduction of new species that could affect grass, fields, and landscaping.
West Warren-Warren Water Improvement District	Burrowing animals or rodents can damage water pumps, individual meters, water lines, and district buildings. Some rodents destroy parts of vehicles or mechanical equipment. Destruction disrupt district services.
Weber Fire District	Water systems may be impacted. Further, agricultural losses may be experienced in the district's service area.

Changes in Development

Table 127: Invasive Species Changes in Development Summary

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Weber County	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from invasive species.

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Harrisville	Stayed the Same	The city encourages the use of local plant life when constructing new developments. While prevents large developments from bringing in non-native species, it does not stop people from bringing in non-native animals and plants to their homes.
Hooper	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from invasive species.
Marriott-Slaterville	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from invasive species.
Plain City	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from invasive species.
Pleasant View	Stayed the Same	Development that has occurred is not anticipated to have impacted this hazard type.
Riverdale	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from invasive species.
Roy	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from invasive species.
South Ogden	Decreased	The city is working to make the city more resilient and prepared for all events.
Washington Terrace	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from invasive species.
Pineview Water Systems	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from invasive species.
Roy Water Conservancy District	Stayed the Same	Vulnerability has not changed as there has been no information to point to an imminent invasive species issue.
Weber-Morgan Health Department	Increased	West Nile and Zika virus and other disease on the increase.
Weber School District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from invasive species.
West Warren-Warren WID	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from invasive species.
Weber Fire District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from invasive species.

The introduction of invasive pests and noxious weeds can have a significant impact on the development trends of a community. These unwelcome species can disrupt the natural balance of an ecosystem, leading to a decline in the health of the environment and the community's economic and social well-being.

Invasive pests and noxious weeds can damage crops, kill trees, and harm wildlife, leading to decreased agricultural productivity, loss of habitat, and reduced biodiversity. As a result, communities may have to redirect resources toward pest and weed control, which can impact their development plans. In addition, invasive pests and noxious weeds can deter tourism and negatively affect property values, thus changing a community's development trajectory.

Population and climate change also can contribute to the spread of invasive pests and noxious weeds. As populations increase, there is a greater demand for resources, which can lead to increased transportation and trade. This, in turn, can facilitate the spread of invasive pests and noxious weeds across regions and borders. Climate change can create more favorable conditions for these species to thrive, further exacerbating the problem.

Given the potential impact of invasive pests and noxious weeds on the built environment and development trends, communities must prevent their spread. This can include monitoring and early detection efforts and implementing control measures, such as herbicides, pesticides, and other management strategies. By proactively addressing these issues, communities can help protect their environment, economy, and overall well-being.

Over the years, the community's vulnerability to invasive pests and noxious weeds has increased due to the introduction of new varieties, an increase in population, and travel between borders. Unfortunately, the previous plan did not fully address this issue, so there is little to compare.

SECONDARY HAZARDS

Noxious weeds and invasive pests pose significant secondary hazards to the environment and human activities. These include habitat destruction, economic damage, spread of diseases, disruption of ecosystem services, and increased fire risk. Invasive species can outcompete native species, leading to the degradation of habitats and the loss of biodiversity. They can also cause significant damage to agriculture, forestry, and other industries, leading to economic losses. Some invasive pests can spread diseases to plants, animals, and humans, posing health risks. Noxious weeds can also reduce soil quality and water availability, thereby decreasing agricultural productivity. In addition, some noxious weeds can be toxic to livestock and wildlife, posing a health risk to the animals that eat them. Invasive weeds can increase the risk of wildfires because of their ability to alter the flammability of vegetation. They can create dense, highly flammable vegetation that can fuel fires. By altering the composition and structure of plant communities, invasive weeds can contribute to increased fire intensity and spread. This heightened fire risk is one of the secondary hazards associated with invasive weeds and emphasizes the importance of effective management strategies to control and eradicate them.

Landslide

Landslides, also known as mass movements, are caused by a combination of geological and climatological conditions and are defined as the movement of a mass of rock, debris, or earth down a slope. They can be very destructive, as Figure 123 illustrates. The five modes of slope movement are as follows:

- Falls
- Topples
- Slides
- Spreads
- Flows



Figure 123: 2006 South Weber Landslide Flows

They are further categorized based on the type of geological material and type of movement: bedrock, debris, or earth.[180] Movements include rotational, translational, block, rockfall, topple, debris flow, debris avalanche, earthflow, and creep (see Figure 124).

Landslides vary in size and speed and are caused by natural events like storms, seismic activity, and human activities like mining and construction. Landslide vulnerability factors include terrain gradient, slope materials, moisture, vegetation, and human modifications. Earthquakes, heavy rainfall, volcanic eruptions, and human activities can trigger landslides. Debris flows, rock falls, and collapses near perennial streams are common in Utah. These events can harm people, structures, and transportation routes in mountainous areas.

[180] USGS, "What is a Landslide and What Causes One?" https://www.usgs.gov/faqs/what-a-landslide-and-what-causes-one

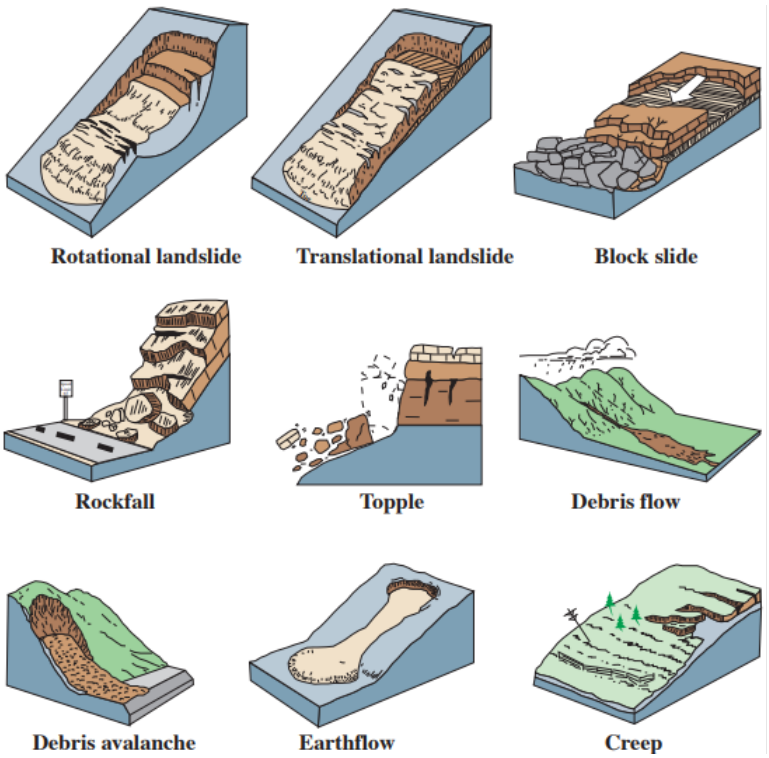


Figure 124: Types of Landslides[181]

Figure 125 shows the various geological features of a landscape area.

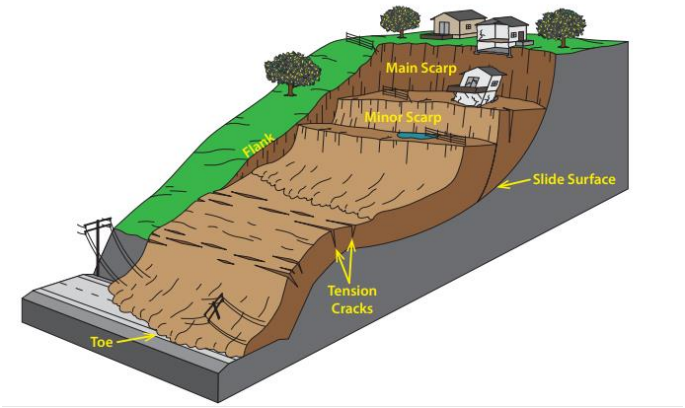


Figure 125: Features of a Landslide Area[182]

[181] Utah Geological Survey, "Landslide Hazards in Utah." https://ugspub.nr.utah.gov/publications/public_information/pi-98.pdf
[182] Ibid.

Location

Landslides are likely to happen in areas where they have happened before, the bottoms of steep hills, places where water flows, hills where houses are built, and leach fields. Landslides are not very likely in areas that have never had landslides, flat areas not near steep slopes, and the tops of hills away from the edges.

The intricate geology of North Ogden City includes diverse rock formations and soil types. The city's landscape is characterized by hills and mountains, which may lead to landslides in areas with steep inclines. Similarly, Riverdale is at a low point relative to surrounding cities because of its geography along the river. It is bounded by slopes on the east, west, and south, putting it at risk of landslides. Due to sensitive land formations, the areas at risk of future landslides include the southern end and western edge of Washington Terrace. Figure 126 shows the locations of potential landslides in Weber County.

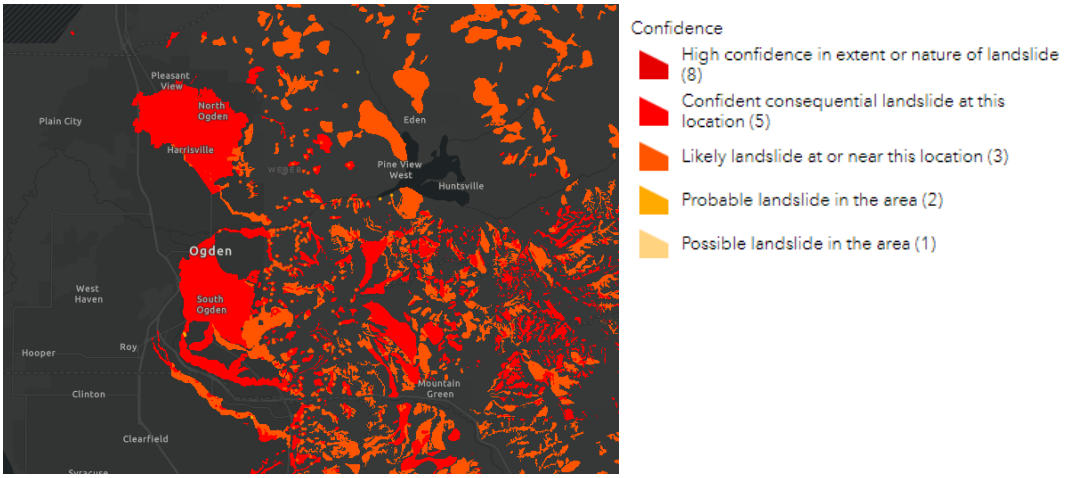


Figure 126: Weber County Landslide Inventory[183]

Landslides in Weber County are possible along the slopes of the mountains, particularly in the Ogden River Canyon area. Heavy rainfall or snowmelt could trigger accumulated sediment in the canyon, leading to a debris landslide.[184]

Figure 127 through Figure 131 illustrate the potential areas of landside susceptibility in Weber County by jurisdiction or special district. Figure 132 shows how likely they are at various locations in the County.

[183] U.S. Landslide Inventory, "Weber, County, UT, USA." https://usgs.maps.arcgis.com/apps/webappviewer/index.html?id=ae120962f459434b8c904b456c82669d

[184] The Disaster Company, "Weber County Natural Disaster." https://disastercompany.com/weber-county-natural-disaster/

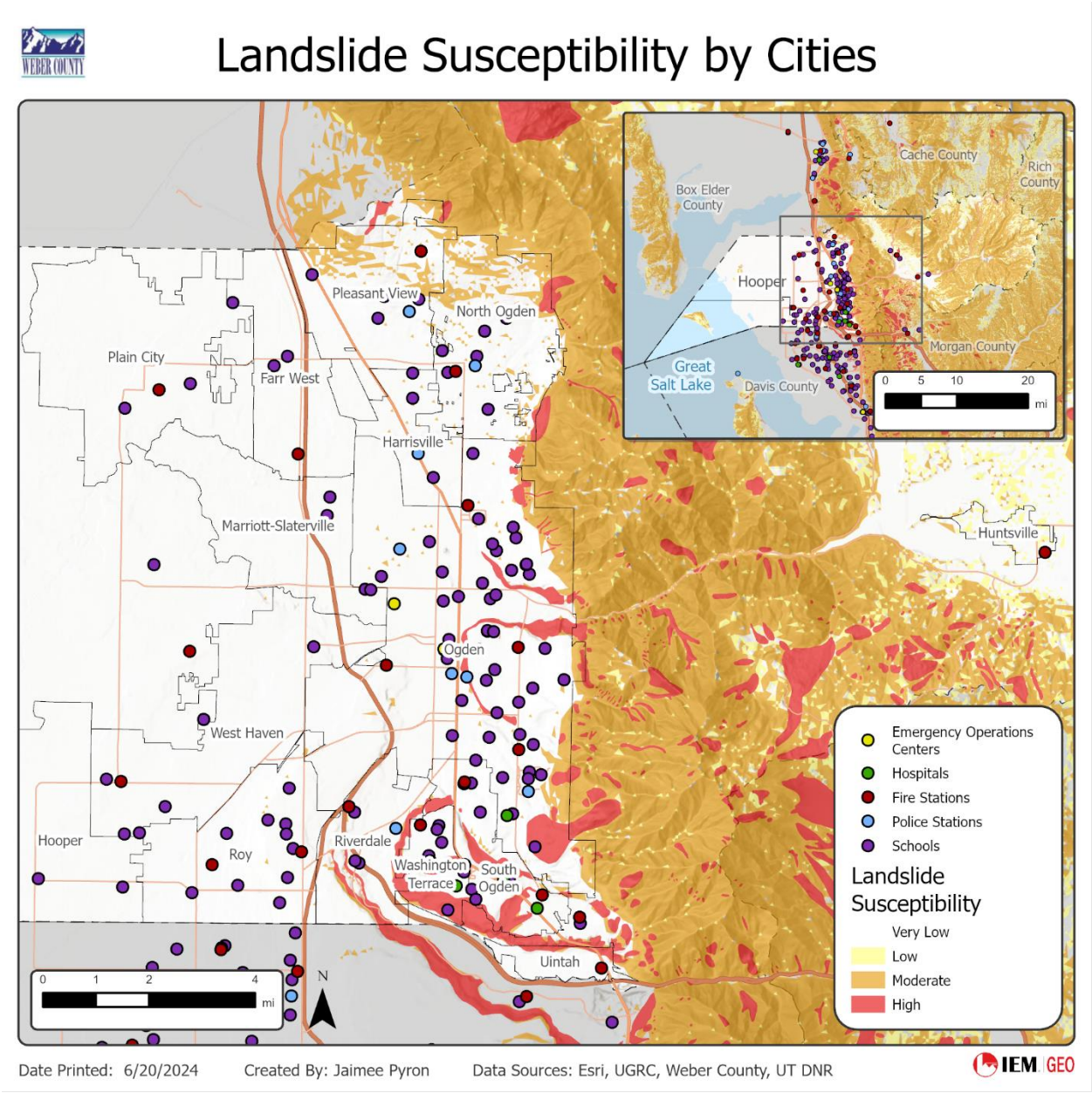


Figure 127: Critical Facilities in Landslide-Susceptible Areas by City

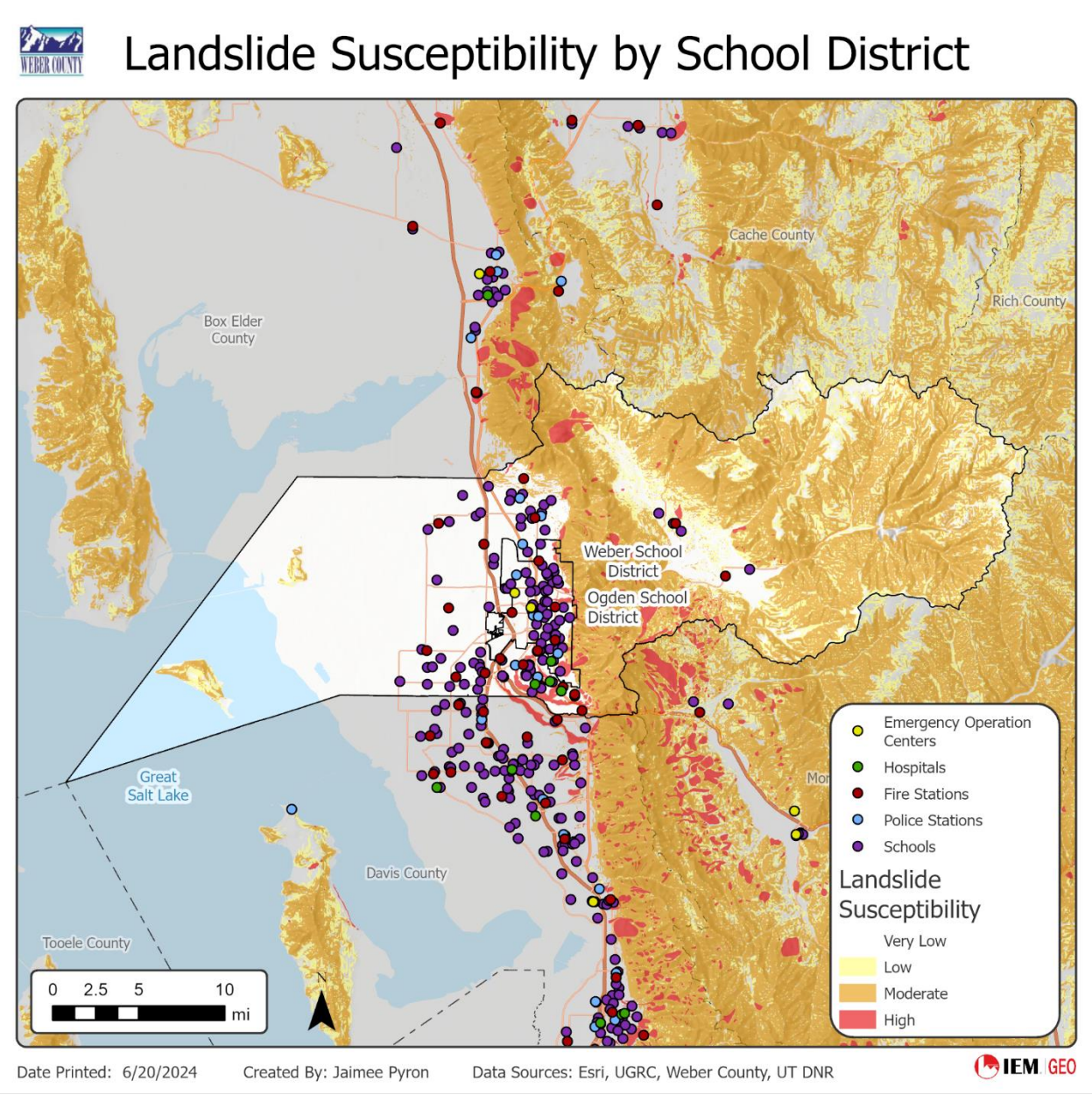


Figure 128: Critical Facilities in Landslide-Susceptible Areas by School District

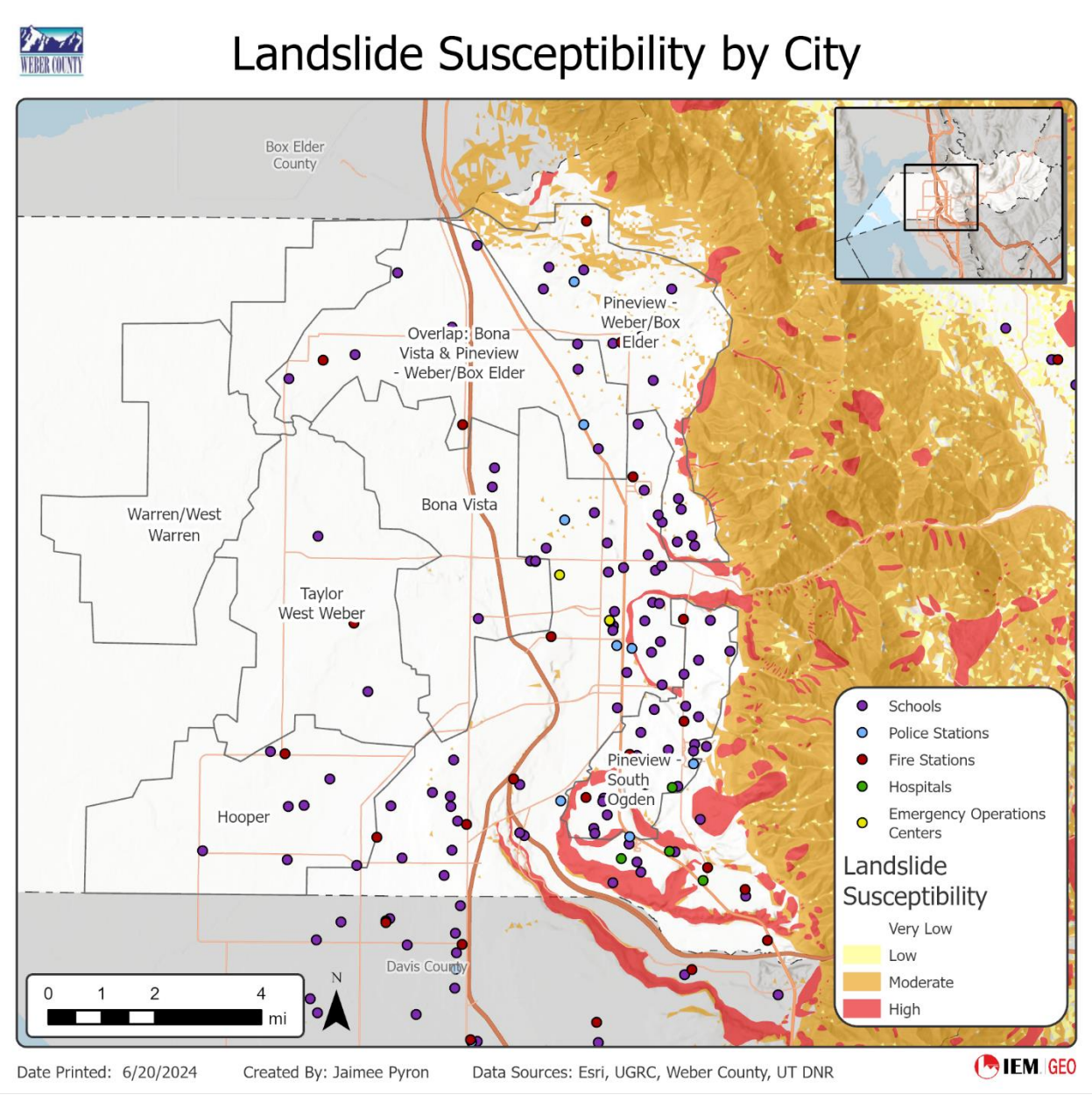


Figure 129: Critical Facilities in Landslide-Susceptible Areas by Water District

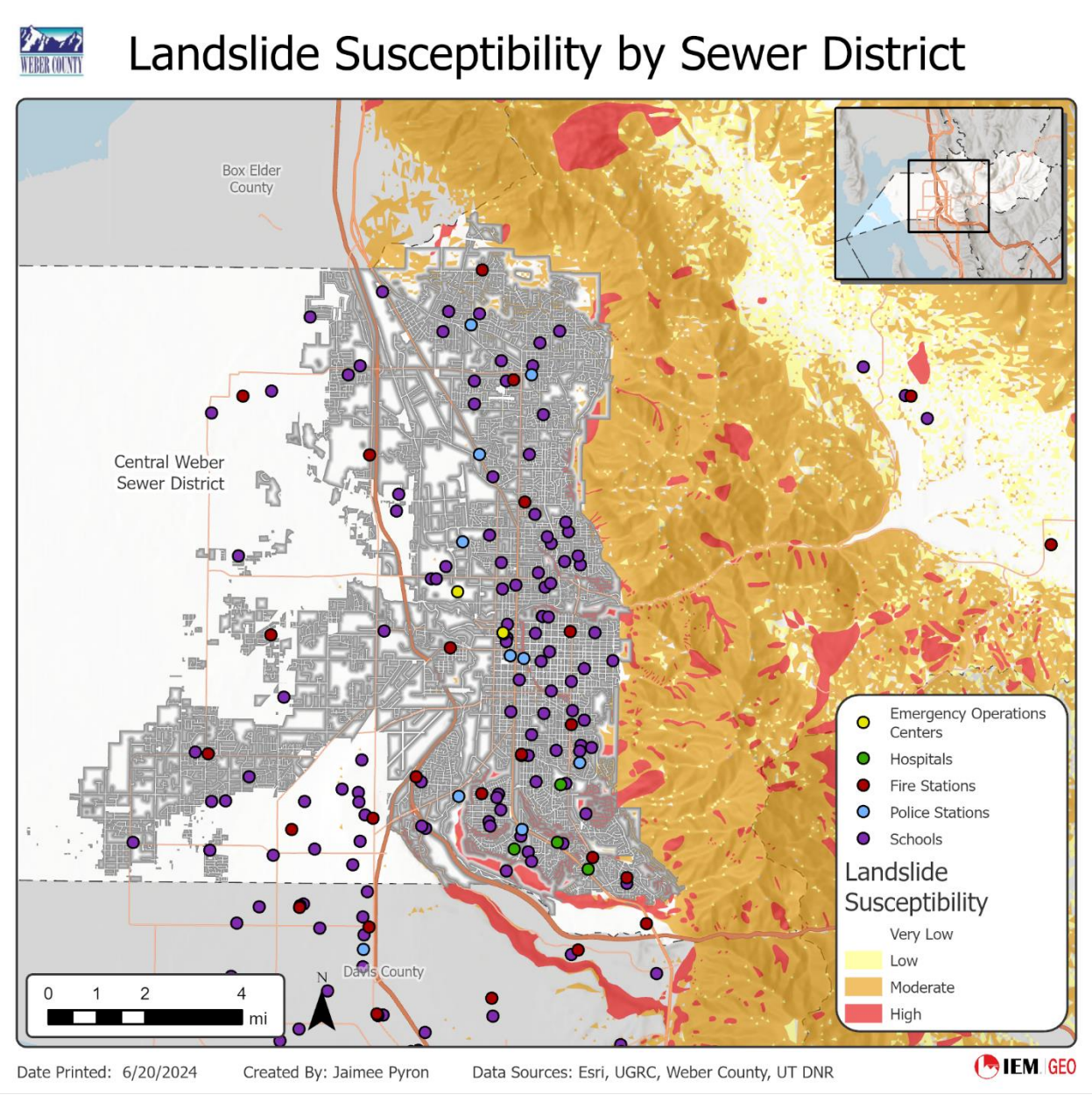


Figure 130: Critical Facilities in Landslide-Susceptible Areas by Sewer District

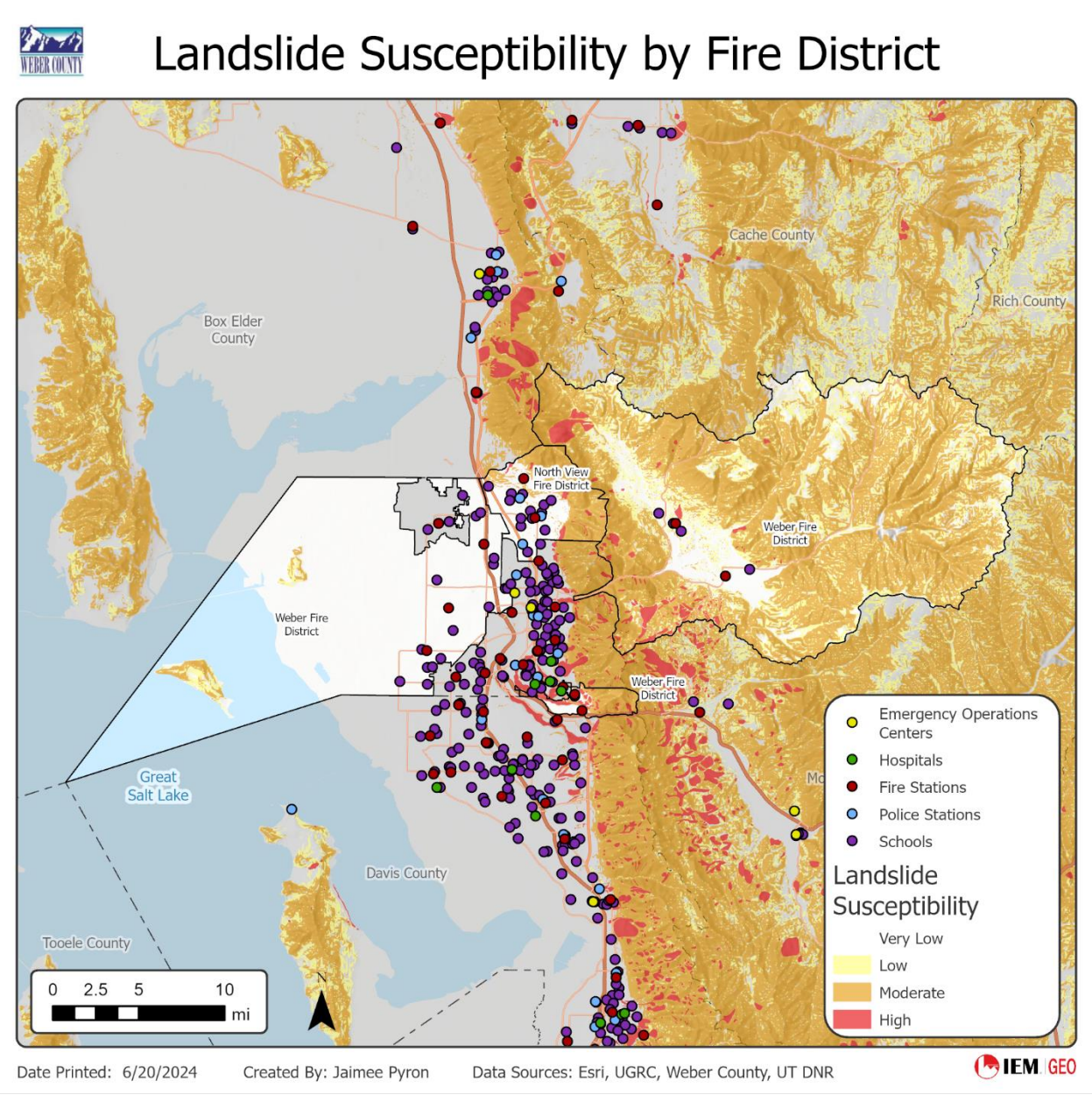


Figure 131: Critical Facilities in Landslide-Susceptible Areas by Fire District

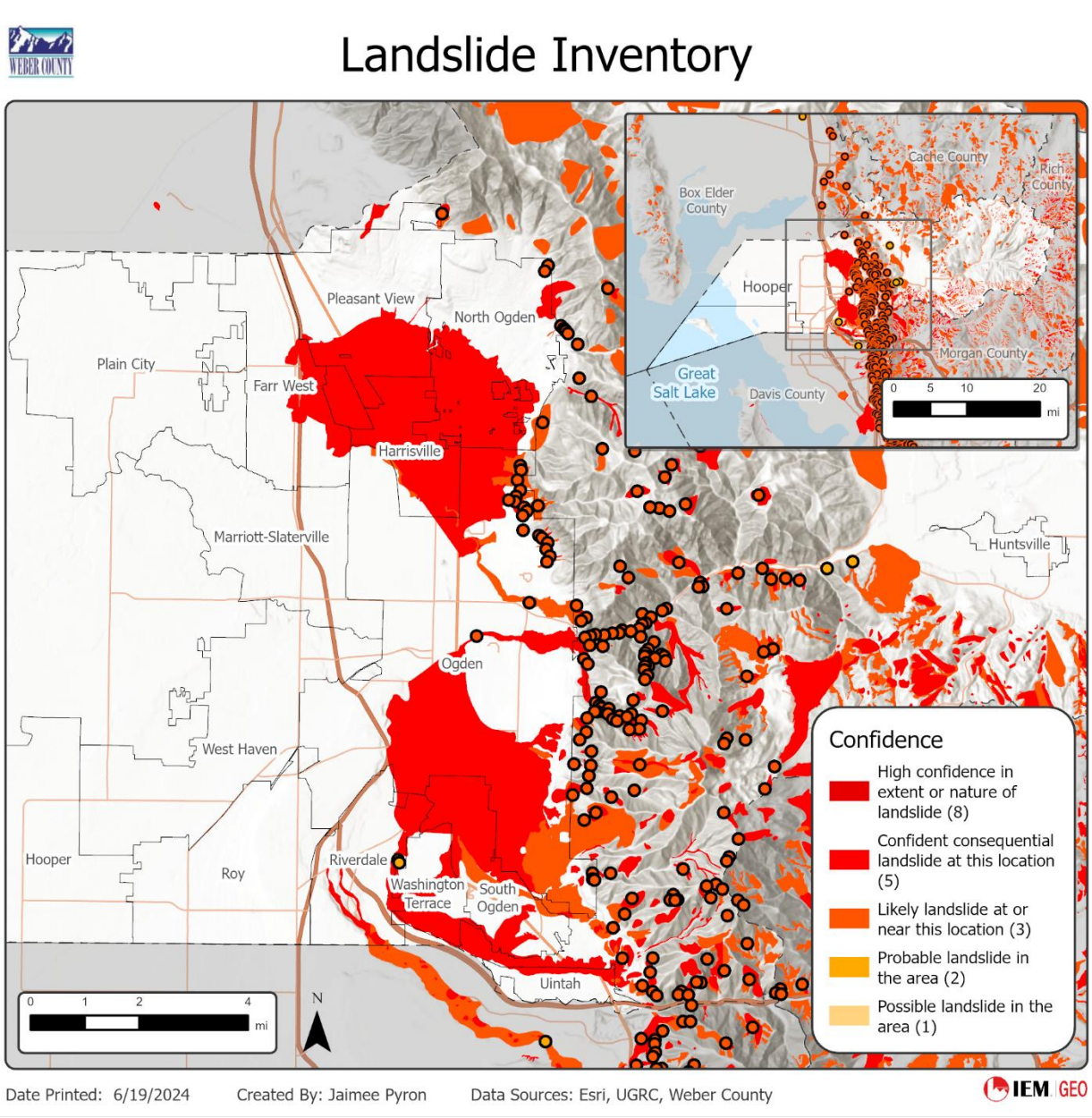


Figure 132: Likelihood of Landslides in Weber County

Magnitude/Extent

Landslides in Weber County can be characterized in several ways, including whether the slope is steep or gentle, the type of soil and rock present, the amount of rainfall or snowmelt in each period, and the presence of any natural or human-made drainage channels. Other characteristics may include the speed and force of the sliding mass, the potential for debris flow or other secondary hazards, and the potential for long-term erosion and landscape changes.

In the event of a landslide along the Wasatch Front, the extent and intensity in Weber County would depend on various factors, such as the size and speed of the landslide and the specific location and elevation of the impacted area. Residents near the landslide would likely experience disruptions to transportation, potential property damage, and risks to personal safety.

Table 128 displays the potential magnitude and extent of damage to Weber County should a landslide occur. Landslide risk is primarily on the mountainous area of the county and could impact multiple jurisdictions. Jurisdictions that are excluded from landslide risk include: Farr West, Harrisville, Hooper, Huntsville, Marriott-Slaterville, Plain City, Roy, West Haven, Taylor West Weber Water District, and West Warren-Warren WID.

Table 128: Landslide Magnitude Scale for Weber County

		Damage Level	Amount of Area Affected
Potential Magnitude		Catastrophic	>50%
		Critical	25–50%
	X	Limited	10–25%
		Negligible	<10%

Previous Occurrences

Table 129 lists the FEMA Disaster Declarations for Weber County since May 1953, as of May 22, 2024. Other recent landslides are described in the following paragraphs. Based on the FEMA Disaster Declarations Database, Weber County has received no designation for landslide disaster declarations since the last plan update.

Table 129: FEMA Disaster Declarations for Landslides- Weber County[185]

Date	Declaration#
08/17/1984	DR-720-UT
04/13/1983	DR-680-UT

May 19, 2023, A small mudslide damaged at least one home in Nordic Valley and prompted officials to try to divert the water to prevent future damage quickly. The mudslide occurred near the intersection of Viking Drive and Somerset in Eden around 3:30 p.m. Weber Fire Chief David Reed confirmed that the

[185] FEMA, "Disaster Declarations for States and Counties." https://www.fema.gov/data-visualization/disaster-declarations-states-and-counties

mudslide happened in the same area on May 10. However, this time, a different home was affected by debris.[186]

On **May 11, 2023,** Geologist Keilee Higgs from the Utah Geological Service (UGS) reported a landslide near South Weber Drive in Riverdale. Landslide debris temporarily covered the road, which was cleaned up (see Figure 133). A broken pipe from a secondary water supply for Riverview Estates Mobile Home Park may have contributed to the landslide.[187]



Figure 133: Riverdale Landslide, 2023[188]

A mudslide was reported on **April 18, 2019,** at the site of a burn scar. In 2017, a fire caused by downed power lines damaged more than 20 structures at the site, including five homes, three of which were destroyed. The slide covered the train tracks with water and debris. According to officials, the mudslide was approximately 100 feet long, 75 feet wide, and slid down about 50 feet in Weber Canyon. Authorities stated that seepage from a retention pond above had compromised the lower tracks.[189]

The Spring Creek Road landslide in Riverdale occurred on a steep 200-foot bluff above the Weber River floodplain. The landslide began on **November 19, 2017**, as the saturated lower half of the slope dislodged 10 to 15 feet of organic-rich soil and unconsolidated silty sand Lake Bonneville deposits. The slide extended about 270 feet onto the pasture below, with an average depth of 4–7 feet. This landslide activity

[186] YouTube, "Weber County Mudslide Causes Damage to Garage in Same Area as Previous Slide Last Week." https://www.youtube.com/watch?v=CxuWj7tfp88
[187] Utah Geological Survey, "Riverdale South Weber Drive Landslide, Weber County." https://geology.utah.gov/portfolio-item/riverdale-south-weber-drive-landslide/
[188] Utah Geological Survey, "Geological Hazards." https://geology.utah.gov/portfolio-item/riverdale-south-weber-drive-landslide/
[189] KSL, "Mudslide at Burn Scar Impacts Tracks in Weber County." https://ksltv.com/412116/mudslide-burn-scar-impacts-train-tracks-weber-county/

was caused by spring flow from several points halfway up the bluff, resulting in continuous erosion and depositing of material on the pasture below, burying buildings and horse property.

Following the initial event, the evacuation area extended approximately 250 feet east of Spring Creek Road at the base of the slope. Several later major and minor internal landslides continued to enlarge the upper ones.

The landslide in the upper part of the slope expanded, leading Riverdale City to enforce a mandatory evacuation of three houses on November 28, 2017. The evacuation was for the houses at the top of the slope along the west side of 600 West. In addition, a voluntary evacuation of a fourth house to the south occurred in early March 2018. Riverdale City contracted with GSH Geotechnical to drill three boreholes on 600 West to collect groundwater data (done by the UGS) and measure slope movement.[190]

On the evening of **February 20, 2005**, a landslide in South Weber blocked State Route 60. The Utah Department of Transportation closed the highway and cleared the debris. The landslide was approximately 480 feet long and 80 feet wide, destroyed a barn south of the highway, and flowed into a field north of the highway. The geologic material in the slope under the canal embankment consists of sand, silt, and clay from the Pleistocene Lake Bonneville Weber River delta. This slope was formed as the Weber River eroded its former delta when Lake Bonneville receded 16,000 years ago. Shallow groundwater and weak soil materials characterize the slope.

The main scarp of the landslide is in the outer canal and the canal road embankment. The upper part of the main scarp is made up of canal embankment fill, and about 20–25 feet of embankment and canal road remain between the crown of the landslide and the canal. Currently, water is not flowing in the canal, and it remains undamaged, but it is at risk because of the potential retreat of the main scarp. Fresh scarps in the hillside, both east and west of the landslide, indicate that nearby slopes are still somewhat stable.

On the morning of February 21, water was observed flowing from the landslide scar, where vegetation suggests the presence of shallow groundwater. Precipitation in the Layton–South Weber–Ogden area before the landslide was 148% of normal. Shallow groundwater, steep slope, canal embankment fill, and weak underlying geologic materials likely contributed to the landslide.[191]

Around 9:30 p.m., **April 9, 2006**, a hillside in South Weber failed, flowed over the Davis–Weber Canal, and impacted a house at 7687 S. 1650 E. It injured a child inside the house and caused significant damage (see Figure 134). The slope had experienced other recent failures and was prone to landslides because of its formation as Lake Bonneville receded.

[190] Utah Geological Survey, "The Curious Spring Creek Road Landslide." https://geology.utah.gov/map-pub/survey-notes/the-curious-spring-creek-road-landslide/
[191] Utah Geological Survey, February 20, 2005, 425 East South Weber Drive Landslide South Weber. Davis County." https://geology.utah.gov/hazards/landslides/south-weber-landslide-2/

The gravel-pit operations on the bluff top caused a landslide, mainly because of human-placed fill. The pond near the landslide showed active underground seepage, indicating local instability. The groundwater table was lowered to prevent saturation, but shallow groundwater was still common.[192]



Figure 134: Davis–Weber Canal Landslide, 2005[193]

Probability of Future Occurrences

Weber County is susceptible to geologic hazards, such as landslides, rockfalls, and debris flows, which occur almost annually. Therefore, this hazard is considered **Likely**. These hazards are more frequent during periods of high precipitation, particularly in the spring and summer months. High precipitation can increase landslides because it saturates the soil, making it heavier and more prone to movement. When the soil becomes fully saturated, it loses its strength and cohesion, which can cause it to become unstable and slide downhill. In addition, heavy rainfall can increase the water pressure in the soil, reducing soil strength and causing landslides to occur more easily.

Figure 135 illustrates the annualized frequency of landslides by county based on the NRI. The number of landslides expected over the next year for Weber County is 0.082–0.17. The annualized frequency may change because of precipitation patterns, land use, vegetation cover, and human activities such as construction and mining. Deforestation and improper land use can increase the likelihood of landslides by

[192] Utah Geological Survey, "April 9, 2006, 1650 East South Weber Landslide, Davis County." https://geology.utah.gov/hazards/landslides/south-weber-landslide/
[193] Utah Geological Survey, "Landslide Hazards in Utah." https://ugspub.nr.utah.gov/publications/public_information/pi-98.pdf

destabilizing the soil and reducing its ability to absorb water. Similarly, intense or prolonged periods of rain can raise the annualized frequency of landslides by saturating the soil and weakening its stability.

The impact of climate change on landslide risk in Weber County is significant and ongoing. Precipitation patterns are expected to shift throughout the twenty-first century, with projections indicating increased precipitation in northern Utah and decreased precipitation in southern Utah by 2100. This change in precipitation, particularly a shift from snow-dominated to rain-dominated precipitation, will likely increase the risk of landslides. Warmer winter temperatures also are a concern, as they can reduce frozen soils and lead to a higher likelihood of landslides, especially when heavy rain falls on unfrozen soil or snowpack. In addition, the projected increase in extreme precipitation events, both in summer and winter, will further elevate the risk of landslides.

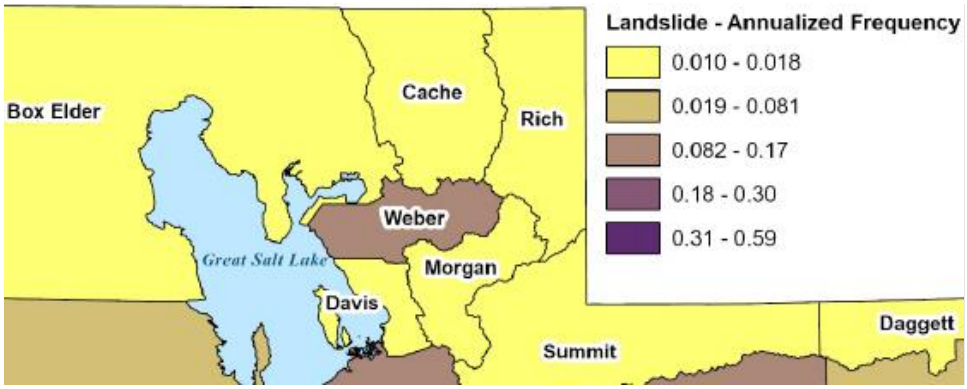


Figure 135: Annualized Frequency of Landslides Weber County[194]

Vulnerability Analysis

Landslides will continue to represent an ongoing threat to Weber County.

Table 130: Landslide Vulnerability Assessment

Plan Participant Name	Asset Type	Description
Weber County	Structures	Private property is at-risk along slide areas and in the eastern portion of the County.
	Systems	Water, stormwater delivery infrastructure, and roadways are all vulnerable to landslides. Both road and rail routes could be affected.

[194] Utah Department of Public Safety, "State of Utah Hazard Mitigation Plan." https://hazards.utah.gov/state-of-utah-hazard-mitigation-plan/

Plan Participant Name	Asset Type	Description
	Populations	People living in areas prone to landslides including in the eastern portion of the County are at risk to this hazard.
	Other	Landslides could affect agricultural land as well as transportation routes which would affect the local economy.
North Ogden	Structures	Homes near slopes are at risk.
	Systems	Roads near slopes are at risk.
	Populations	People living in areas prone to landslides.
	Other	None
Ogden	Structures	Homes and buildings located on or near slopes are at risk. Low income and mass housing units in landslide areas will be affected.
	Systems	Roads, highway networks, utility lines and services in landslide-prone areas could all be disrupted. Transportation disruption would impact delivery of goods and services. Infrastructure repair and mitigation can be costly.
	Populations	Residents living in hilly or mountains areas could be affected. Transportation routes could be disrupted which would affect commuters.
	Other	Natural landscapes and habitats and watercourses can be affected by landslides and debris flow.
Pleasant View	Structures	Residential structures could be affected.
	Systems	Roads are at risk to damage or being blocked.
	Populations	Residents may be affected if homes or roads are damaged.
	Other	None
Riverdale	Structures	East bench homes are at risk.
	Systems	Same as County

Plan Participant Name	Asset Type	Description
	Populations	Same as County
	Other	None
South Ogden	Structures	Same as County
	Systems	Public infrastructure such as water and sewer lines, power grids and communication networks could be damaged. Two culinary water tanks could be impacted.
	Populations	All residents, particularly the elderly, could be affected by water shortages if water supply system was damaged.
	Other	None
Uintah	Structures	Buildings, particularly along the north portion of the city, may be at risk.
	Systems	Public infrastructure including roadways along the north portion of the city are at risk.
	Populations	Populations living or visiting high-risk areas along the north portion of the city can be at risk.
	Other	None
Washington Terrace	Structures	Building is restricted in lands where landslides are possible.
	Systems	Same as County
	Populations	Same as County
	Other	None
Pineview Water System	Structures	None
	Systems	Infrastructure could be damaged, including water delivery systems and roadways to facilities.

Plan Participant Name	Asset Type	Description
	Populations	None
	Other	None
Roy Water Conservancy District	Structures	None
	Systems	Infrastructure such as pipes are at-risk.
	Populations	None
	Other	None
Ogden School District	Structures	Shallow Valley Elementary may be at risk.
	Systems	Same as County
	Populations	Employees and students/residents within school district boundary.
	Other	School activities at Shallow Valley Elementary could be affected.
Weber Morgan Health Department	Structures	None
	Systems	None
	Populations	None
	Other	None
Weber School District	Structures	None
	Systems	Transportation routes and other regional infrastructure such as power and communications could be disrupted.

Plan Participant Name	Asset Type	Description
	Populations	Employees and students may be affected.
	Other	None
Central Weber Sewer Improvement District	Structure	Wastewater collection pipelines could be damaged.
	Systems	Pipeline damage could disrupt operations to customers.
	Populations	Disruption to district customers.
	Other	None
North View Fire District	Structures	Residential structures are at risk.
	Systems	Roads, water lines, and other infrastructure could be damaged.
	Populations	Residents in service area and district employees could be affected.
	Other	None
Weber Fire District	Structures	Communities in mountainous areas could be impacted by landslides. Past impacts include landslide in Nordic area.
	Systems	Transportation routes and utility systems could be disrupted.
	Populations	Residents in service area in landslide prone areas.
	Other	None

Impacts

Landslides in Weber County could significantly impact people, infrastructure, agriculture, and the economy. People living in areas prone to landslides may face the risk of property damage, displacement, and potential injury or loss of life. Infrastructure, such as roads, bridges, and utility lines, could be damaged or destroyed, disrupting transportation and essential services. In agricultural areas, landslides can destroy

crops, soil, and irrigation systems, leading to financial losses for farmers and impacting local food supplies. In addition, the region's overall economy may suffer because of the cost of recovery, rebuilding, and potential declines in property values and business activities.

Table 131 displays the potential impact of landslides on residential and commercial units in Weber County.

Table 131: Landslide Impacts on Residential and Commercial Units Weber County[195]

Residential Units			Commercial Units		
People	Units	Value	Units	Value	Critical Facilities
40,531	13,916	$2,023,386,400	125	$1,903,607,575	4

Table 132 presents detailed data on the risk exposure values and the associated costs in the event of landslides. This information is essential for assessing the financial impact and risk mitigation strategies related to projects.

Table 132: Risk Exposure Value, Weber County[196]

Building Value	Population Equivalence	Population	Total
$6,888,521,677	$569,995,992,792	49,137.59	$576,884,514,469

Table 133 and Table 134 present the estimated annual financial losses to buildings and population from landslides in Weber County. These data provide an overview of the projected economic impact of landslides on the area, considering both structural damage to buildings and potential effects on the population.

Table 133: Expected Annual Loss from Landslides, Weber County[197]

Building Value	Population Equivalence	Population	Total
$343,784	$35,092	0	$379,687

[195] Ibid.
[196] FEMA, "National Risk Index Weber County Utah." https://hazards.fema.gov/nri/report/viewer?dataLOD=Counties&dataIDs=C49057#SectionExpectedAnnualLoss
[197] Ibid.

Table 134: Expected Annual Loss from Landslides to Jurisdictions in Weber County[198]

Jurisdiction	Expected Annual Loss (EAL)	Exposure Loss	Vulnerability Score
Farr West	$0	$0	No EAL
Harrisville	$0	$0	No EAL
Hooper	$0	$0	No EAL
Marriot–Slaterville	$0	$0	No EAL
North Ogden	$1.5K	$9B	Relatively Moderate
Ogden	$1.1 K	$1.2 B	Relatively Low
Plain City	$0	$0	No EAL
Pleasant View	$0	$0	No EAL
Riverdale	$70K	$21B	Very High
South Ogden	$14	$121M	Very Low
Uintah	$8.8K	$39B	Relatively High
Washington Terrace	$8.9K	$39B	Relatively High
West Haven	$0	$0	No EAL

Table 135: Impacts of Landslide by Jurisdiction

Plan Participant Name	Impacts
Weber County	There are a number of known and mapped landslide areas in Weber County. While building codes and local ordinances address many infrastructure vulnerabilities related to this hazard, secondary impacts from a slide event are an issue. Slide areas generally run along natural drainages. Slide events occurring during runoff or flooding events have and continue to happen. The events have threatened, damaged, and destroyed private property, water and stormwater delivery infrastructure, and roadways. People may also be injured or killed during a landslide. Further, systems like transportation routes and agricultural lands could be damaged or destroyed.
City of North Ogden	Residences and transportation routes near slopes could be damaged or destroyed. People living in areas prone to landslide could be injured or killed.
City of Ogden	Landslides will affect low-income and mass housing units; homes and buildings located on or near slopes; transportation infrastructure, including roads and railways; and residents of hilly or mountainous areas.

[198] Ibid.

Plan Participant Name	Impacts
	The impact of landslides extends to commuters using affected transportation routes. The disruption in road and highway networks will be significant, involving many people. Utility lines and services in landslide-prone areas are at risk; natural landscapes, habitats, and watercourses may be affected by debris flow. Transportation disruptions impact goods and services and involve costs for infrastructure repair and landslide mitigation.
City of Pleasant View	Roads and residential structures could be damaged or destroyed. Residents may be displaced, injured, or killed. Transportation routes could be disrupted.
City of Riverdale	Roads and residential structures could be damaged or destroyed. Residents may be displaced, injured, or killed. Transportation routes could be disrupted.
City of South Ogden	Landslides can damage public infrastructure, including water and sewage lines, power grids, and communication networks. Disruptions to these services can have severe consequences for the elderly, who may rely on access to these utilities for their health and safety. South Ogden has two culinary water tanks that could be impacted by a landslide. These tanks provide the major water supply to the entire city. If the tanks are compromised, water shortages could severely affect all residents, highlighting the need for community-wide preparedness, particularly among the elderly. Homes located on or near slopes are at risk of landslides, which can cause severe structural damage or destruction.
City of Uintah	Buildings and systems such as roadways can be damaged or destroyed during a landslide, particularly along the north side of the city. Populations in these areas susceptible to landslides may be injured or killed.
City of Washington Terrace	Systems, including transportation and water infrastructure, could be damaged or destroyed. Building is restricted in high-risk areas. However, populations in these areas may be injured or killed by a landslide.
Pineview Water System	Infrastructure, including water delivery systems and transportation routes to facilities, could be damaged or destroyed. These impacts may result in disruption of Pineview Water System's services.
Roy Water Conservancy District	Infrastructure such as pipes could be damaged or destroyed. This may impact delivery of services to customers.
Ogden School District	Employees, students, systems, and structures within the boundary area of Shadow Valley Elementary are at risk. School activities at Shadow Valley Elementary could be disrupted, delayed, or cancelled.

Plan Participant Name	Impacts
Weber Morgan Health Department	There is no imminent risk from landslides to the Health Department. However, residents in Weber County may have negative health consequences including injury or death due to a landslide event. Transportation to and from facilities may be impacted for residents in high-risk areas.
Weber School District	Community lifelines, including transportation, power, and communications, could be disrupted. Employees and students may have difficult accessing school facilities due to transportation disruptions. School activities may be disrupted.
North View Fire District	Residential structures and other infrastructure, including roads and water lines, could be damaged or destroyed. Residents in the district's service area and district employees could be injured or killed in a landslide event. Staff may also be injured while responding to a landslide event.
Weber Fire District	Landslides could impact mountainous communities, damaging or destroying residences, transportation routes, and utility systems. Residents may be injured or killed. District staff may be injured while responding to a landslide event. The ability to provide service may be impacted by disruptions to transportation routes.
Central Weber Sewer Improvement District	Operations of wastewater collection and treatment facilities could be disrupted if pipelines are damaged. Customers may experience service disruptions.

Changes in Development

Table 136: Landslide Changes in Development Summary

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Weber County	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from landslides. Continues to be a hazard of concern for the County.

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
North Ogden	Decreased	The city has decreased risk because of the white rock debris basin installed at the bottom of North Ogden Drive.
Ogden	Increased	Development in areas near unstable hillsides will affect development if a landslide occurs.
Pleasant View	Decreased	Due to development in North Ogden, building a large debris catch basin near the mount of the North Ogden Divide reduces risk.
Riverdale	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from landslides.
South Ogden	Decreased	There is decreased risk because the water tanks that hold most of the culinary water supply have been updated in accordance with the current seismic code.
Uintah	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from landslides.
Washington Terrace	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from landslides.
Ogden School District	Decreased	There is decreased risk because ground movement is being monitored.
Pineview Water Systems	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from landslides.
Roy Water Conservancy District	Stayed the Same	Vulnerability has not changed, as land within boundaries have not changed.

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Weber-Morgan Health Department	Stayed the Same	Since the last plan update, there have been no changes in development related to landslide.
Weber School District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from landslides.
Central Weber Sewer Improvement District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from landslides.
Weber Fire District	Increased	Increased heat and snow melt are increasing flooding potential.
North View Fire District	Decreased	Due to development in North Ogden, building a large debris catch basin near the mount of the North Ogden Divide reduces risk.

Landslides are natural events that can have a devastating impact on the environment and human settlements. While they typically affect a smaller area than hazards like earthquakes or droughts, landslides could impact entire neighborhoods or subdivisions in extreme cases. However, it is unlikely that they will damage an entire city.

Development in areas adjacent to geologic hazards, such as rockfall, can have severe consequences. Identifying these hazards and taking measures to avoid or mitigate development near them are crucial to prevent vulnerability from increasing. This proactive approach is key to ensuring the safety and resilience of communities in landslide-prone areas.

Weber County has highlighted that the region's topography, characterized by its rivers and mountainous terrain, poses significant challenges for new development initiatives. The presence of geological features, such as the Wasatch Fault, underscores the potential for seismic activity, thereby exerting a substantial influence on infrastructure planning in the County. Many cities in Weber County have experienced high growth yet continue to allow development in landslide-risk areas.[199] The long and rapid runout of the

[199] Utah Department of Public Safety, "State of Utah Hazard Mitigation Plan." https://hazards.utah.gov/state-of-utah-hazard-mitigation-plan/

April 9, 2006, landslide and the February 20, 2005, 435 East South Weber landslide, just 2 miles to the west, indicate the risks involved in building near the bases of these slopes.

Building in landslide-risk areas can have several effects. First, increased population density can lead to more construction and development in these areas, further destabilizing the land and increasing the risk of landslides. Deforestation from urban expansion and improper land use, such as overgrazing, construction of roads on steep slopes, and inadequate drainage systems in urban areas, associated with population growth, also can contribute to soil erosion and landslide susceptibility. Moreover, a larger population in these areas means that more lives and property are at risk when landslides occur, potentially leading to greater human and economic losses. Finally, increased demand for resources and infrastructure in these areas can place additional stress on the environment, exacerbating the risk of landslides.

The rise in population in Weber County has raised concerns about the increased vulnerability of these areas. As more people move into these regions, there is a greater risk of casualties and property damage in the event of landslides. The combination of natural factors and human activities, such as deforestation and improper land use, has increased the susceptibility of these areas to landslides. Therefore, human and infrastructure vulnerability is greater because of the increase in population since the previous plan.

SECONDARY HAZARDS

Secondary hazards from landslides include flooding, dam failure, and the disruption of infrastructure such as roads, utilities, and buildings. These secondary hazards can have cascading impacts on the affected area, leading to further destruction, hindering rescue and recovery efforts, and causing long-term economic and environmental consequences.

Problem Soils

Problem soils have specific soil and/or rock properties that make them uneconomical for the cultivation of crops. They include collapsible soil, expansive soil and rock, land subsidence, earth fissures, and soil containing radon gas. Problem soils can cause extensive damage to buildings, utilities, and other infrastructure, resulting in high maintenance and replacement costs when the hazard is not properly mitigated.[200]

Location

Two types of problem soils are present in Weber County: limestone and expansive soils. Both are primarily found in the Wasatch Mountains in the eastern part of the county. The Norwood Tuff formation is present in the Ogden Valley. It is a Quaternary period soil present in the Upper Eocene and Lower Oligocene Series characterized by whit to tan-weather, fine-to medium bedded, friable tuff and sandy tuff, with very low to low permeability and susceptible to landslides. This formation is credited for landslides in the Snow Basin Road area.

Magnitude/Extent

There is no standardized magnitude or extent scale for problem soils similar to those used for natural hazards like earthquakes or floods. However, problem soils impacts can be described and assessed based on various factors that influence their composition, severity, and consequences.

Problem soils typically are not deadly, but they have negative economic impacts. Expansive, compressible, and collapsible soils, including karst, caliche, and shallow bedrock, can damage structures, foundations, roads, and infrastructure. The Utah Geological Survey recommends that local governments adopt groundwater basin management plans to prevent land subsidence and earth fissure hazards.[201] Limestone karst structures are easily eroded by water and, therefore, often form caverns and crevices. If these caverns become large enough, the overlying ground can give way, causing sink holes and other forms of subsidence. Structures directly over the karst structure have high potential for collapse. Groundwater contamination also is possible. Developed areas of Ogden Canyon in Weber County may have some karst hazard.

Expansive soils can absorb significant quantities of water. When a home or road is placed on top of these soils, normal evaporation cannot take place. The clay begins to absorb more water than is evaporated, and it begins to expand, causing heaving. During especially dry periods, these soils can contract significantly, causing subsidence and ground cracking. Residents living in these areas should avoid excessive watering, make sure there is sufficient water drainage around the home, and ensure that plumbing and irrigation pipes and fixtures are well protected from breakage or leaks. Developments around Pineview Reservoir and northern Ogden Valley may experience some drainage problems, subsidence, and/or landslides.

[200] Utah Geological Survey, 2024, "Problem Soils and Rock Hazards", Problem Soil and Rock Hazards - Utah Geological Survey
[201] Utah Department of Public Safety, Hazard Mitigation, 2024, Geologic Hazards | State of Utah Hazard Mitigation

Problem soil conditions vary in the county. Many of the jurisdictions could be affected, excluding the following: Farr West, Hooper, Huntsville, North Ogden, Ogden, Uintah, Ogden School District, Weber-Morgan Health Department, Weber Fire District, and North View Fire District.

Previous Occurrences

Based on the FEMA Disaster Declarations Database, Weber County has received no designation for problem soils disaster declarations since the last plan update. In addition, there have been no state declarations of disaster for problem soils.

Probability of Future Occurrence

The probability of problem soil incidents in the planning area is considered **unlikely** given the lack of prior hazard events. There is a high degree of exposure to problem soils across much of Utah, including Weber County. However, the potential magnitude of expansive soil events and damage is almost negligible. The Utah SHMP reports a hazard risk score of 4.0 for the hazard of problem soils impacting Weber County.[202] Researchers have concluded that soil organic matter may be much more vulnerable to climate change than previously thought.[203] Changing levels of greenhouse gases in the earth's atmosphere have a direct effect on the earth's climate systems, including the most important components of soil organic matter influenced by climate change and by carbon and nitrogen gases. Temperature changes and precipitation patterns also influence soil organic matter, causing runoff and soil erosion.[204]

Vulnerability Analysis

Table 137: Problem Soils Vulnerability Assessment

Plan Participant Name	Asset Type	Description
Weber County	Structures	Problem soils have the potential to cause structural damage. Structures in areas susceptible to landslides in Weber County are also vulnerable to problem soils.
	Systems	Problem soils have the potential to impact transportation and utility networks. Including in areas at risk to landslides as well.

[202] Utah State Hazard Mitigation Plan, 2024, "Hazard Risk Scores from LHMPs by County"" Utah SHMP 2024.pdf - Google Drive

[203] Lawrence Livermore National Laboratory, Anne Stark, 2015, Soil organic matter vulnerable to climate change | Lawrence Livermore National Laboratory (llnl.gov)

[204] Agriculture, 2013, Erick Brevik, The Potential Impact of Climate Change on Soil Properties and Processes and Corresponding Influence on Food Security (illinois.edu), Agriculture 2013, 3, 398-417; doi:10.3390/agriculture3030398

Plan Participant Name	Asset Type	Description
	Populations	Populations in areas at-risk of problem soils could be affected.
	Other	None
Harrisville	Structures	Residential and manufacturing areas including along 750 W are at-risk.
	Systems	Transportation routes, including near 750 W, are at risk.
	Populations	Residents around 750 W and other parts of the community with clay-rich soil could be impacted.
	Other	The economy, particularly manufacturing, is at-risk.
Marriott-Slaterville	Structures	None
	Systems	Water systems are at risk.
	Populations	None
	Other	No report has been made to the city of any problem soils, but it is known that the nearby DDO (Defense Depot Ogden) has contaminated soils that could possibly leech into water sources. Agriculture may be at risk.
Pleasant View	Structures	Prospective liquefaction on hillside and high ground-water areas could damage structures.
	Systems	Water sources are at-risk.
	Populations	Residents of affected structures could be affected.
	Other	None
Plain City	Structures	Structures near problem soils are a high concern and could experience damage due to liquefaction.
	Systems	Underground utilities could be damaged.

Plan Participant Name	Asset Type	Description
	Populations	Residents of affected structures could be affected.
	Other	None
Riverdale	Structures	East Bench homes are at risk.
	Systems	Possible impacts to transportation or utility networks.
	Populations	None
	Other	None
Roy	Structures	Residential and commercial structures could be affected.
	Systems	Corrosive soils are impacting ductile iron waterlines.
	Populations	Same as County
	Other	None
South Ogden	Structures	Home foundations can be damaged, particularly those built before modern building codes.
	Systems	Same as County
	Populations	Elderly residents may lack physical ability or financial resources to address foundation repairs and face unsafe living conditions.
	Other	None
Washington Terrace	Structures	Same as County
	Systems	Soil is corrosive to ductal pips and underground water delivery systems in some areas.
	Populations	Same as County
	Other	None

Plan Participant Name	Asset Type	Description
West Haven	Structures	Same as County
	Systems	Agricultural and residential vegetation may be affected.
	Populations	Same as County
	Other	None
Pineview Water System	Structures	None
	Systems	Problem soils cause erosion damage to water system.
	Populations	Customers could be affected by water system damages.
	Other	None
Roy Water Conservancy District	Structures	None
	Systems	Water systems are at-risk.
	Populations	None
	Other	None
Taylor West Weber Water District	Structures	None
	Systems	High alkali soils corrode underground water lines and fittings. Expansive soils can lead to broken water pipes.
	Population	Customers could be affected by broken water pipes.
	Other	None
Weber School District	Structures	None
	Systems	Problem soils cause erosion damage to water system.

Plan Participant Name	Asset Type	Description
	Population	None
	Other	None
West Warren-Warren Water Improvement District	Structures	None
	Systems	Water lines, pumps, and meters can wear out prematurely if corroded by highly acidic or alkaline soils.
	Populations	Water customers would be affected if delivery of water was disrupted by system damage.
	Other	None
Central Weber Sewer Improvement District	Structures	None
	Systems	Sewer systems could be affected by problem soils.
	Populations	Customers could be affected in there are damages to the system.
	Other	None

Impacts

There have been no deaths reported in Weber County as a direct result of the hazard of problem soils. However, there is a negative economic impact from the significant and undetermined amount of infrastructure damage, such as damaged pavements after construction, resulting in high maintenance and/or replacement costs. There is also increased legal and financial liability from pavement separation and/or gaps that become tripping hazards. The need for maintenance may disrupt business activities, resulting in increased costs and/or lost revenue. Therefore, it could be considered more cost effective to perform a comprehensive engineering-geology investigation to identify and characterize geologic hazards and implement appropriate mitigation in project design and construction, rather than relying on additional

maintenance over the life of the project or to incur costly change orders during construction.[205] Damages caused by most geologic hazards are typically not covered by homeowners or other property insurance. However, damage to vehicles may be covered by automobile insurance.

Table 138: Impacts of Problem Soils by Jurisdiction

Plan Participant Name	Impacts
Weber County	Problem soils have not directly impacted county facilities. However, some water districts that serve the county have been impacted by alkaline soils that have caused corrosion to water lines. Damage to water systems could interrupt service to county residents.
City of Harrisville	Harrisville City's soil is clay-rich, so water cannot percolate in some areas. Transportation could be disrupted. Damage to water systems could interrupt service to city residents. Economic losses could occur, particularly to the manufacturing industry.
City of Marriot-Slaterville	Problem soils could result in damage to crops and other economic losses. If water sources were impacted, this could affect water systems in the area. Soil type could also contribute to liquefaction in certain areas of the city in the event of an earthquake.
Plain City	There is a high concern about problem soils and high groundwater areas liquefying, causing issues with structures, residents, and underground utilities. These assets could be damaged or destroyed due to problem soils. Utility failure may be experienced in the area.
Pleasant View	Structures may be damaged by problem soils and people on hillsides and high groundwater areas may be affected. Water supplies could be impacted. Liquefaction can occur during an earthquake event.
City of Riverdale	East Bench homes could be damaged due to problem soils. Transportation routes and utility networks could be damaged or destroyed. Impacted areas may experience disruption of services including transportation and utilities.
City of Roy	Residential and commercial structures could be damaged. People in affected areas could be hurt during an incident. Water systems, particularly iron waterlines, could be damaged or destroyed. Water services may be disrupted while repairs are made.

[205] Utah Geological Survey, 2024, "Problem Soils and Rock Hazards", Problem Soil and Rock Hazards - Utah Geological Survey

Plan Participant Name	Impacts
City of South Ogden	Problem soils, such as expansive or collapsible soils, can cause foundation damage to homes, particularly those built before modern building codes accounted for such conditions. Elderly residents may lack the financial resources or physical ability to address foundation repairs, leading to unsafe living conditions. Transportation and utility networks could be damaged, potentially leading to delays or disruptions.
City of Washington Terrace	In some areas of the city, the soil is corrosive to ductal pipes and underground water delivery systems. Though limited in scope, the soil is apparent when identified. Unfortunately, the identification is only visible after the corrosive nature of the soil has damaged pipes and fittings. Structures can be damaged and populations impacted by disruptions to water systems, transportation routes, and utility networks.
City of West Haven	Structures could be damaged. Residents in affected areas could be injured. The most likely impact is to agriculture and residential vegetation. Economic losses could result from crop losses.
Pineview Water System	Parts of the water system could be damaged or destroyed because problem soils cause erosion. Customers may experience disruption of services while repairs are being made.
Roy Water Conservancy District	Water systems could be damaged or destroyed by problem soils. Customers may experience disruption of services.
Taylor West Weber Water Improvement District	The district's underground water lines and fittings may be damaged or destroyed. When water pipes break, customers may experience disruption of services while repairs are being made.
Weber School District	Problem soils may negatively impact water systems. Without water, district activities may be delayed or disrupted.
West Warren-Warren Water Improvement District	Highly acidic or alkaline soils can corrode water lines, pumps, meters and cause them to wear out prematurely. Damage to water systems could disrupt services, impacting customers.
Central Weber Sewer Improvement District	Operations of wastewater collection and treatment facilities could be disrupted. Customers would be impacted by disruption of services.

Changes in Development

Table 139: Problem Soils Changes in Development Summary

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Weber County	Increased	The Utah Automated Geographic Reference Center (UGRC) has identified 35 active alluvial fans in Weber County.[206] Alluvial fan landforms pose unique flooding hazards that are not present on non-fan landforms (e.g., rivers and streams whose flooding hazards are commonly defined through FEMA regulatory floodplains). FEMA defines alluvial fan flooding as "Flooding occurring on the surface of an alluvial fan or similar landform which originates at the apex and is characterized by high-velocity flows; active process of erosion, sediment transport, and deposition; and unpredictable flow paths. Alluvial fan flooding is depicted on a Flood Insurance Rate Map (FIRM) as Zone AO, with a flood depth and velocity" (FEMA 2003).[207] Alluvial fans are generally located at a topographic apex between a mountain front and the adjacent piedmont landform, such as the Wasatch Front. Properly identifying alluvial fan landforms is a critical first step in understanding flood risk to downstream development. The existence of these 35 active alluvial fans has increased the overall vulnerability of problem soils in Weber County since the last plan update.
Harrisville	Stayed the Same	Due to the high levels of clay in our soil, water percolation could be better. We have adopted ordinances for new development requiring them to mitigate issues when they develop new property. While new development areas have improved, large city areas still need help.
Marriott-Slaterville	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from problem soils.

[206] Utah Automated Geographic Reference Center, 2024, Utah Alluvial Fans | Utah's State Geographic Information Database (AGRC)
[207] Utah Automated Geographic Reference Center, 2024, UGRC - Utah Alluvial Fans

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Plain City	Decreased	Updated the City's Sensitive Land Use Ordinance for buildings within High-ground water, floodplain, or Wetland areas.
Pleasant View	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from problem soils.
Riverdale	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from problem soils.
Roy	Increased	The risk has increased due to additional homes in potential soil liquefaction areas.
South Ogden	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from problem soils.
Washington Terrace	Decreased	The city removed and replaced ductal iron pipe with PVC pipe to minimize corrosion.
West Haven	Stayed the Same	Since the last plan update, vulnerability has stayed the same, due to no changes in development.
Pineview Water Systems	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from problem soils.
Roy Water Conservancy District	Stayed the Same	Vulnerability has not changed as land within boundaries has not changed.
Taylor West Weber Water District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from problem soils.
Weber School District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from problem soils.

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
West Warren-Warren WID	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from problem soils.
Central Weber Sewer Improvement District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from problem soils.

SECONDARY HAZARDS

Problem soils, such as expansive soils that result from drought conditions or erosion, can lead to flooding caused by broken water pipes, fire caused by broken gas pipes in the ground, and damage to structures, foundations, roads, and infrastructure. In addition, riverine flooding because of alluvial fans located in mountain front topography and adjacent to piedmont landforms can cause downstream flooding in developed areas.

Thunderstorms

A thunderstorm is a weather event characterized by lightning, thunder, and often heavy precipitation. Thunderstorms form when warm, moist air rises quickly into the atmosphere, creating instability and developing cumulonimbus clouds. These clouds can produce lightning, thunder, heavy rain, and sometimes hail, strong winds, and tornadoes. Thunderstorms can occur anywhere in the world, but they are most common in regions with warm and humid climates, especially during the summer months. Thunderstorms are most frequent in North Ogden during the spring and summer seasons.

In the United States, lightning strikes cause an average of 300 injuries and 80 yearly fatalities. Even though most people survive a lightning strike, they may experience long-term and debilitating symptoms. Thunderstorms can also bring other hazards, such as tornadoes, strong winds, hail, and flash flooding. Flash flooding is particularly dangerous and causes more fatalities than any other thunderstorm-related hazard, with over 140 deaths each year.[208]

In the western United States, dry thunderstorms are common and do not produce rain that reaches the ground. Although falling raindrops evaporate, lightning can still reach the ground and cause wildfires.

There are four main types of thunderstorms:[209]

- **Ordinary Cell**: An ordinary cell thunderstorm has only one updraft and downdraft. During its towering cumulus stage, the updraft holds raindrops until they are too heavy, causing it to turn into a downdraft. The falling rain cuts off the moist air supply, and the thunderstorm is short-lived. Hail and gusty winds may occur, but they are usually not severe. However, if atmospheric conditions are favorable, more than one cell may form, leading to microburst winds (usually less than 70 mph) and weak tornadoes.
- **Multi-cell cluster**: In a multi-cell cluster, each cell behaves as a single cell. As the first cell matures, it moves downstream, and a new cell forms upwind. The entire cluster moves downstream at varying speeds, affecting rainfall. "Training echoes" occur when new cells form on the upwind side of the cluster and move over the path of the previous cell. This produces tremendous rainfall over small areas, causing flash flooding. Back-building thunderstorms can produce heavy rainfall over small areas. In 1972, Rapid City received 15" of rain in six hours due to back-building storms.
- **Multi-cell line (Squall line)**: Thunderstorms can form "squall lines" that extend for hundreds of miles. These lines can last for hours and cause damaging winds and hail. Squall lines produce "straight-line" wind damage. Long-lived, strong squall lines are called "derechos." They can travel hundreds of miles and produce widespread damage. A low-hanging arc of cloudiness called a shelf cloud often forms along the front edge of the squall line due to rain-cooled air spreading out from underneath.
- **Supercell Thunderstorms**: Supercell thunderstorms are long-lasting and organized storms that produce large hail, extreme winds, and flash flooding. They are responsible for most of the significant

[208] National Weather Service, "Thunderstorm Definition." https://www.weather.gov/phi/ThunderstormDefinition
[209] National Oceanic and Atmospheric Administration, "Types of Thunderstorms." https://www.noaa.gov/jetstream/tstrmtypes

tornadoes and hailstones larger than golf balls in the United States. Supercells thrive where the winds veer with height, producing storm-scale rotation.

Supercells are divided into three categories based on visual appearance: low precipitation, classic, and high precipitation. Low-precipitation supercells have sparse precipitation, classic supercells have heavy and adjacent precipitation, and high-precipitation supercells have precipitation that sometimes surrounds the updraft. All three categories can produce a lowered, rotating cloud called a wall cloud, a precursor to a tornado that usually forms within it. Wall clouds can persist for 10 minutes or more, have visible rotation, and appear with lots of rising or sinking motion in and around them.

Three ingredients are required for a thunderstorm to form:[210]

- **Moisture:** warm ocean currents produce more moisture than cold currents at the same latitude, with higher evaporation rates. Therefore, thunderstorms that rely on oceanic moisture are more prevalent in regions with warm currents. The southeastern United States receives more precipitation than Southern California due to the warm water from the Atlantic Ocean and Gulf of Mexico.
- **Instability:** Unstable air rises when pushed upward and sinks when pushed downward. It is characterized by warm, moist air near the surface and cold, dry air aloft. When a parcel of air is forced upward in such conditions, it will continue to rise on its own, forming cumulonimbus clouds that create thunderstorms.
- **A lifting mechanism:** Air density plays a crucial role in upward motion. The Sun heats the Earth's surface, creating varying air densities. As the density declines, the air rises, resulting in lift.
  - Uneven heating of Earth's surface is called **differential heating.** The sun heats different surfaces at different rates, creating air with varying densities. Cooler air sinks, forcing up the warmer, less dense air, which creates thermal circulation. This phenomenon causes the Sea Breeze.
  - A **Front** is a boundary between two air masses of different temperatures. Cold fronts lift the warmer air abruptly and can cause thunderstorms if the air is moist and unstable. **Dry Lines** divide warm, moist air from hot, dry air. They cause moist, less dense air to rise over drier, denser air, similar to fronts. The air behind a dry line is usually hotter due to less moisture, making it less dense. This can cause thunderstorms over the plains in spring and early summer. When a thunderstorm passes overhead and a rush of cold air follows, the rain-cooled denser air creates a mini cold front known as an **outflow boundary**, which lifts warm, moist air like a regular front. This lifting of the air can cause new thunderstorms to form.
  - When air hits a mountain, it rises due to the **terrain**, often leading to thunderstorms in the Rocky Mountains in the summer.

Location

Based on climatic data, the northern part of Weber County receives the most thunderstorms—an average of about 30 thunderstorms per year. The southern part of the county

[210] National Oceanic and Atmospheric Administration, "Ingredients for a Thunderstorm." https://www.noaa.gov/jetstream/thunderstorms/ingredients-for-thunderstorm

receives about 20 thunderstorms per year. However, it is worth noting that thunderstorms can occur in any part of the county, and their frequency and intensity can vary from year to year depending on factors like weather patterns and climate change.

Every state experiences thunderstorms to some extent, although their frequency and intensity vary widely. Some states may have fewer thunderstorms than others, but it is unlikely that any state would be completely free of them. Even Alaska, known for its cold and snowy climate, experiences thunderstorms during the summer months.

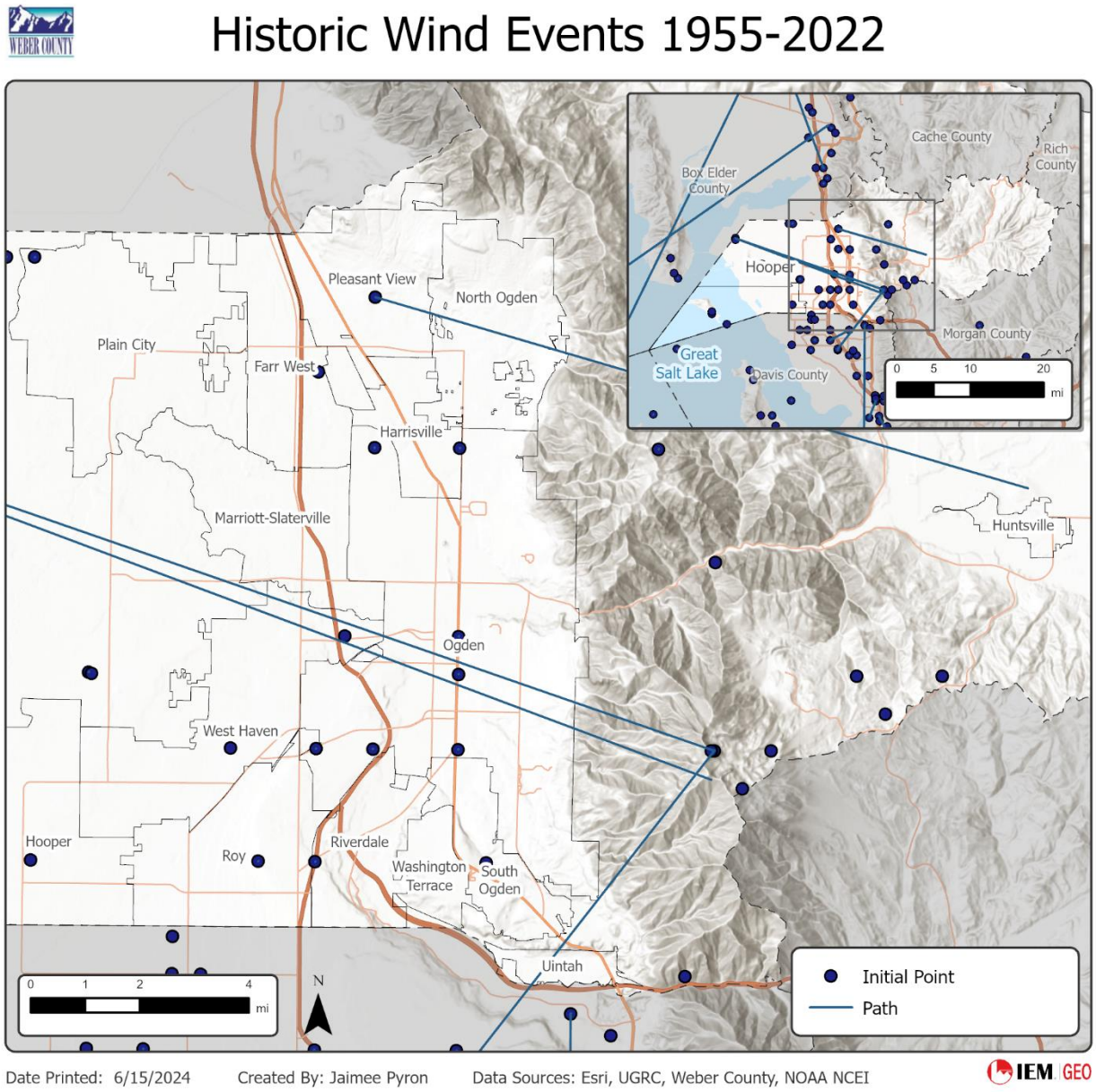


Figure 136: Wind Events in Weber County, 1955–2022

Magnitude/Extent

According to the National Weather Service (NWS), a thunderstorm is classified as severe if it exhibits any of the following characteristics:

- A tornado,
- Damaging winds of 58 mph (50 knots) or more, or
- Hail with a diameter of 1 inch or larger.

The Storm Prediction Center uses a five-point scale to assess the risk of severe storms. Category 1 implies a few isolated severe storms, while a category 5 represents widespread severe storms expected to be intense and long-lasting. Table 140 displays the thunderstorm risk category scale.

Table 140: Thunderstorm Risk Category Scale[211]

THUNDERSTORMS	1 – MARGINAL (MRGL)	2 – SLIGHT (SLGT)	3 – ENHANCED (ENH)	4 – MODERATE (MDT)	5 – HIGH (HIGH)
No severe* thunderstorms expected	**Isolated severe thunderstorms possible**	**Scattered severe storms possible**	**Numerous severe storms possible**	**Widespread severe storms likely**	**Widespread severe storms expected**
Lightning/flooding threats exist with all thunderstorms	Limited in duration and/or coverage and/or intensity	Short-lived and/or not widespread, isolated intense storm possible	More persistent and/or widespread, a few intense	Long-lived widespread and intense	Long-lived very widespread and particularly intense

- On the scale, **non-severe thunderstorms** are shown in light green and have no number. This indicates areas with a 10% or greater chance of thunderstorms during the specified time. This is common on many warm summer days, particularly in the afternoon.
- **Category 1** has a "marginal risk of severe storms," in which there may be a limited area of severe storms that don't last very long, have low coverage, and are on the low end of intensity. This is typically represented on weather maps as dark green.
- **Category 2** is indicated in yellow, representing a slight risk of severe storms. The area may include multiple hazards but is not widespread in coverage, with varying intensity levels.
- **Category 3**, represented by orange, indicates an increased risk of severe storms. It indicates an area with greater severe storm coverage than the slight risk category, exhibiting varying intensity levels.
- **Category 4** indicates a moderate risk of severe storms, denoted by red. There is likely to be widespread severe weather with several tornadoes and/or severe thunderstorms. Some storms may be intense. This risk level is generally reserved for days when several supercells produce intense tornadoes

[211] University of Illinois Urbana–Champaign College of Agriculture, Consumer & Environmental Sciences Illinois Extension, "What do Thunderstorms risk Categories Mean?" https://extension.illinois.edu/blogs/all-about-weather/2022-04-12-what-do-thunderstorm-risk-categories-mean

and/or very large hail. Alternatively, it may be reserved for days with an intense squall line producing widespread damaging winds.

- **Category 4** is shown in magenta and indicates a very high risk of severe weather. This means that an extreme weather event is expected, which could be multiple intense and long-lasting tornadoes, or a long-lived thunderstorm complex known as a derecho, which can produce hurricane-force wind gusts and cause widespread damage. This risk level is given only when there is high confidence that severe weather will be widespread and that there will be instances of extreme severity, such as violent tornadoes.

Figure 137 displays the number of thunder-hours for each state in 2022, with details for Utah.

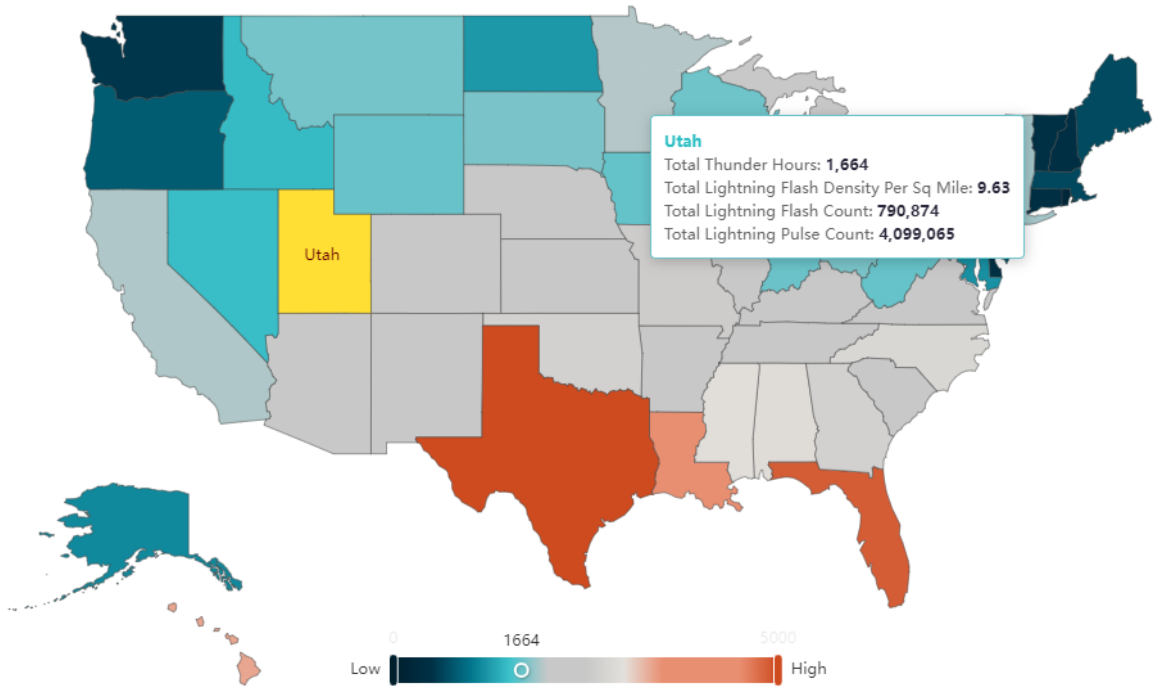


Figure 137: Lightning Flash Hours & Thunder Hours, Utah 2022[212]

Figure 138 shows the number of thunder hours, lightning flash density per square mile, lightning flash counts, and lighting pulse counts for Weber County in 2022.

[212] AEM, "2022 United States Lightning Report." https://aem.eco/2022-united-states-lightning-report/

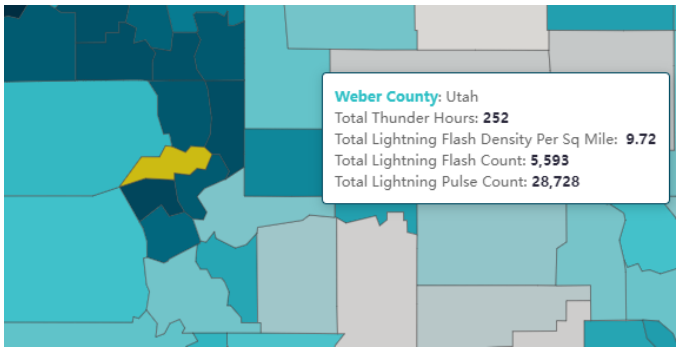


Figure 138: Weber County Lightning Flash Hours & Thunder Hours, 2022[213]

Thunderstorms can occur throughout the county; however, the following jurisdictions excluded thunderstorm due to very low risk: Marriott-Slaterville, North Ogden, and North View Fire District.

Previous Occurrences

Based on the FEMA Disaster Declarations Database, Weber County received a straight-line winds major disaster declaration on January 12, 2021, for the incident period September 7-8, 2020 (DR-4578), and the county was designated for Public Assistance Categories A-G.

[213] Ibid.

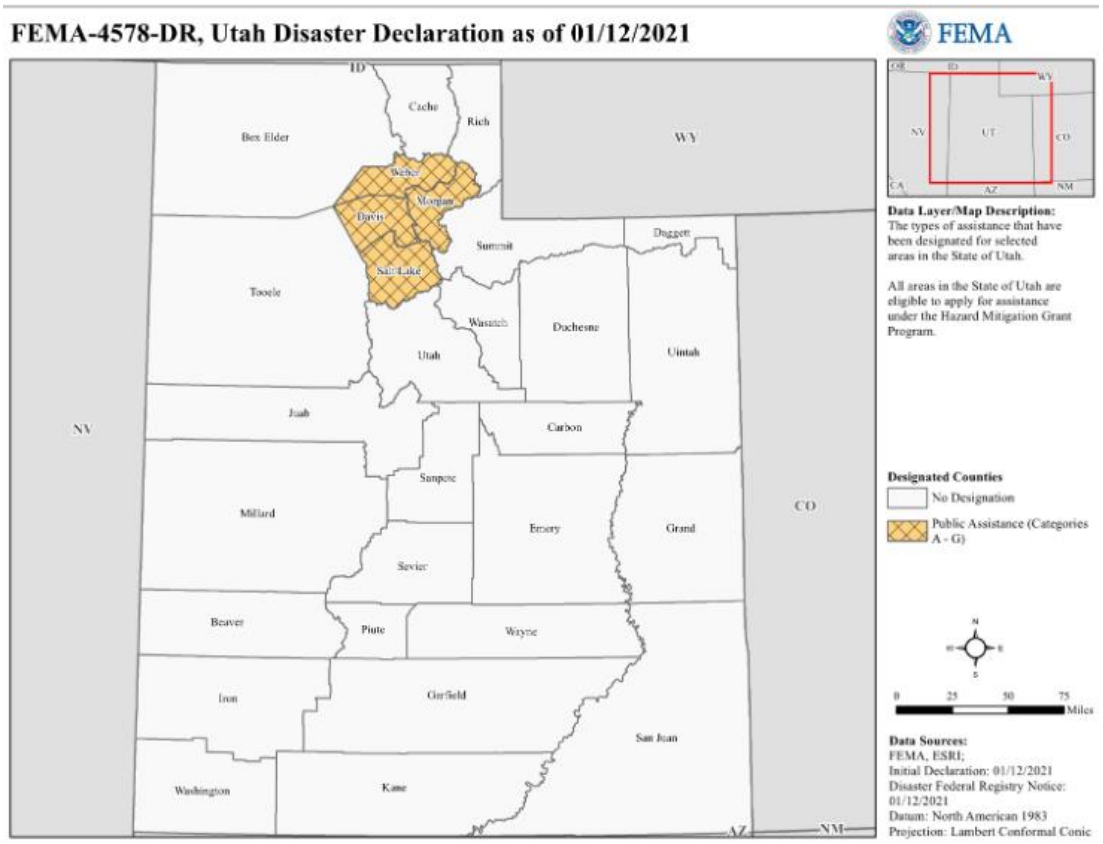


Figure 139: FEMA Disaster Declaration DR-4578, Utah Straight-Line Winds[214]

On **September 22, 2016,** A fast-moving thunderstorm spurred a tornado that hit Weber County, damaging several homes and injuring one person. The destruction was concentrated in Washington Terrace and Riverdale, and it is unclear whether one tornado touched down twice or there were two separate tornadoes. Several dozen homes sustained significant damage, including 10 that became uninhabitable. All the power poles and lines in the area were knocked down, leaving 37,000 people from Weber and Davis counties without electricity. One person suffered a head injury. Severe weather caused destruction throughout the state on Thursday, including a tornado in Panguitch and heavy tree damage in Riverdale. A group of teenagers narrowly escaped the path of the tornado in Riverdale.[215] Figure 140 and Figure 141 show damage in Riverdale and Washington Terrace, respectively. Figure 142 shows windstorm damage in an undated photograph.

[214] FEMA Disaster and Other Declarations, 2024, "DR-4578 Utah Straight-Line Winds", 4578 | FEMA.gov
[215] KSL.com, "Tornado Touches Down in Weber County as Wild Weather Roars through State." https://www.ksl.com/article/41582818/tornado-touches-down-in-weber-county-as-wild-weather-roars-through-state



Figure 140: Tornado Damage in Riverdale, September 22, 2016[216]



Figure 141: Tornado Damage in Washington Terrace, September 22, 2016[217]



Figure 142: Thunderstorm Damage along I-84, Weber County[218]

[216] Ibid.
[217] The Salt Lake Tribune, "It Looked like it was a War Zone: Damage from Rare Tornado Lingers for Weber County Residents a Year Later." https://www.sltrib.com/news/2017/09/23/damage-from-rare-utah-tornado-lingers-a-year-later/
[218] FOX13, "Photos: Storm Causes Heavy Wind Damage in Utah" (n.d.) https://www.fox13now.com/news/local-news/photos-storm-causes-heavy-wind-damage-in-utah#id8

On Saturday evening, **August 21, 2021,** a thunderstorm hit Northern Utah, causing power outages for thousands of Rocky Mountain Power customers. The outage impacted over 5,000 customers from Morgan to Ogden. As of Sunday morning, the number of affected customers had declined to approximately 275. Rocky Mountain Power and the NWS attributed the power issues to the storm.

A representative from Rocky Mountain Power reported that a high-voltage transmission line was down on Morgan Valley Drive in Morgan at 7:30 p.m. on Saturday. The storm also downed power lines and poles, and some trees fell on lines. Customers were advised to report outages and keep the information in their accounts current to receive updates from the company.

Due to the potential dangers, Rocky Mountain Power reminded residents to stay away from all downed power lines, whether or not they are live. Customers could access a map of the Rocky Mountain power outages online at https://www.rockymountainpower.net/outages-safety.html .

A representative from the NWS warned that the winds were strong out of the west and northwest, with gusts in some valley locations over 60 mph. The Salt Lake City NWS station also tweeted an urban and small stream flood advisory to residents of south-central Weber County. It advised people to stay safe near rivers and streams and be alert for possible water ponding on streets and near storm drains.[219]

Table 141, from the Storm Events Database, lists information on thunderstorm wind events in Weber County. Deaths, injuries, and crop damage were eliminated from the table since their totals were zero.

Table 141: Thunderstorm Winds in Weber County Jurisdictions, January 2016–January 2024[220]

Jurisdiction	Date	Magnitude MPH	Property Damage
Roy	05/06/2016	60	$3000
Little Mountain	05/06/2016	62	0
Uintah	05/19/2016	70	0
Little Mountain	06/12/2016	72	0
Little Mountain	08/10/2016	71	0
Washington Terrace	09/22/2016	81	0

[219] Standard-Examiner, "Strong Winds, Storm Lead to Power Outages in Northern Utah; Lines and Poles Down in Morgan." https://www.standard.net/news/local/2021/aug/21/thunderstorm-northern-utah-power-outages-ogden-morgan/

[220] National Centers for Environmental Information, "Storm Events Database." https://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28C%29+Thunderstorm+Wind&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=2016&endDate_mm=01&endDate_dd=31&endDate_yyyy=2024&county=WEBER%3A57&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=49%2CUTAH

Jurisdiction	Date	Magnitude MPH	Property Damage
Little Mountain	09/22/2016	69	0
Uintah	09/22/2016	59	0
Uintah	09/22/2016	101	0
Hermitage	09/22/2016	59	0
Huntsville	09/22/2016	58	0
Uintah	10/02/2016	61	0
Little Mountain	12/16/2016	72	0
Little Mountain	05/06/2017	91	0
Taylor	05/06/2017	70	$60,000
Little Mountain	05/06/2017	67	0
Little Mountain	07/17/2017	59	0
Little Mountain	04/02/2018	62	0
Little Mountain	05/16/2019	61	0
Uintah	05/16/2019	69	0
Little Mountain	06/06/2019	59	0
Little Mountain	06/13/2019	63	0
Little Mountain	06/13/2019	61	0
Little Mountain	07/04/2019	61	0
Uintah	07/04/2019	74	0
Wilson	06/05/2020	58	0
Little Mountain	06/05/2020	62	0

Jurisdiction	Date	Magnitude MPH	Property Damage
Little Mountain	07/27/2020	68	0
Little Mountain	05/19/2021	59	0
Uintah	08/21/2021	67	0
Hermitage	08/21/2021	70	$30,000
Little Mountain	08/21/2021	58	0
Ogden	09/10/2021	59	0
Little Mountain	10/07/2021	69	0
Ogden Municipal Airport	10/07/2021	64	0
Little Mountain	05/02/2022	61	0
Uintah	05/02/2022	63	0
Little Mountain	06/19/2022	69	0
Roy	06/19/2022	64	0
Little Mountain	06/28/2022	69	0
Hermitage	07/17/2022	64	0
Little Mountain	08/01/2022	66	0
Little Mountain	09/15/2022	81	0
Little Mountain	09/28/2022	61	0
Uintah	09/28/2022	62	0
Washington Terrace	07/03/2023	85	$7,500
South Ogden	07/03/2023	75	$500
Ogden Municipal Airport	07/19/2023	61	0

Jurisdiction	Date	Magnitude MPH	Property Damage
Total Losses			101,000

Probability of Future Occurrences

Given a historical frequency of 28 days of recorded thunderstorms in an eight year period between 2016 and 2024, the probability of this hazard event occurring in the future is **Highly Likely**.

Climate change has been linked to increased frequency and intensity of thunderstorms in the United States. As temperatures rise, more energy is available to fuel these storms, leading to more frequent and severe thunderstorms. In addition, warmer air holds more moisture, resulting in heavier rainfall during thunderstorms. This can lead to an increased risk of flash flooding, which can cause significant damage to communities. Overall, the impact of climate change on thunderstorms is an area of active research. Still, evidence suggests that it is already affecting storm frequency and intensity.

Vulnerability Analysis

Table 142: Thunderstorms Vulnerability Assessment

Plan Participant Name	Asset Type	Description
Weber County	Structures	High winds and localized flooding can damage structures.
	Systems	Power systems can be damaged by high winds. Roadways may be affected by debris or localized flooding. Damage may result in economic losses.
	Populations	Temporary shelter may be needed.
	Other	None
Farr West	Structures	Homes and businesses could experience flooding from rain from thunderstorms.
	Systems	Roads, farms, and other facilities and properties could be affected by storms and related flooding.
	Populations	None
	Other	Storms could vary from minor to extensive impacts.

Plan Participant Name	Asset Type	Description
Hooper	Structures	All structures are at risk of damage and flooding.
	Systems	Thunderstorms could cause downed powerlines. Heavy rain during thunderstorms may overwhelm storm drain systems.
	Populations	None
	Other	None
Harrisville	Structures	Thunderstorms with heavy rainfall can cause flooding for residents in lower elevations. The city is below North Ogden and Ogden. Stormwater runs down to the city through several canals. If the stormwater overflows a canal, nearby residents are at a potential flood risk. Most canals run through residential neighborhoods.
	Systems	Same as County
	Populations	None
	Other	None
Huntsville	Structures	Storm and wind damage to buildings, including residences and businesses.
	Systems	Same as County
	Populations	People could be injured by falling debris or damage to structures.
	Other	None
Ogden	Structures	Same as County
	Systems	Same as County
	Populations	None
	Other	There is a high potential for microbursts, which can lead to flooding.

Plan Participant Name	Asset Type	Description
Ogden School District	Structures	School district facilities may be at risk.
	Systems	Same as County
	Populations	Employees and students/residents are at risk.
	Other	None
Pleasant View	Structures	City-wide prospect
	Systems	Same as County
	Populations	None
	Other	None
Riverdale	Structures	None
	Systems	Utilities could be affected, including loss of power.
	Population	None
	Other	None
Roy	Structures	Wind damage to buildings and City facilities. Potential flooding.
	Systems	Same as County
	Population	None
	Other	Lightning during thunderstorms may ignite fires.
South Ogden	Structures	Low-lying residential areas may experience flash flooding.
	Systems	Same as County
	Populations	Elderly residents may have difficulty evacuating.

Plan Participant Name	Asset Type	Description
	Other	None
Uintah	Structures	Downed trees can damage buildings.
	Systems	Entire city could be affected if power grid is disrupted.
	Populations	Safety of residents is a concern
	Other	None
Washington Terrace	Structures	Localized flooding is possible during significant rain events
	Systems	Same as County
	Populations	None
	Other	None
West Haven	Structures	Downed trees can damage buildings.
	Systems	Entire city could be affected if power grid is disrupted.
	Populations	Safety of residents is a concern
	Other	None
Pineview Water System	Structures	None
	Systems	Power outages would affect operations.
	Populations	None
	Other	None
Roy Water Conservancy District	Structures	None

Plan Participant Name	Asset Type	Description
	Systems	Power outages associated with this hazard could put the district's operations at-risk.
	Populations	None
	Other	None
Taylor West Weber Water District	Structures	None
	Systems	Power outages could disrupt operations.
	Population	None
	Other	None
Weber Morgan Health Department	Structures	Continual capital improvements on building to reduce weather-related impacts.
	Systems	None
	Population	None
	Other	None
Weber School District	Structures	None
	Systems	School operations may be disrupted. Transportation routes and power may be affected.
	Populations	Students and employees could be affected.
	Other	None
West Warren-Warren Water Improvement District	Structures	None

Plan Participant Name	Asset Type	Description
	Systems	Storms can cause power outage, which would shut down water pumps and storm flow of water to the area.
	Populations	Customers in the service area would be affected by disruptions to water service.
	Other	None
Central Weber Sewer Improvement District	Structure	Wastewater collection and treatment structures could be damaged.
	Systems	Structural damage could disrupt operations to customers.
	Populations	Disruption of service to district customers.
	Other	None
Weber Fire District	Structures	Lightning during storms can cause wildland and structural fires in all areas of the District.
	Systems	Same as County
	Populations	None
	Other	None

Impacts

Thunderstorms can have varying impacts on communities. Lightning strikes can cause power outages and fires and damage buildings and infrastructure. Heavy rainfall can lead to flooding, damaging homes, businesses, and roads and even threatening human life. Strong winds associated with thunderstorms can damage buildings and trees, potentially leading to power outages and road closures. Hail, another common feature of thunderstorms, can damage crops and vehicles.

Table 143 presents detailed data on the risk exposure values and the associated costs from thunderstorms. This information is essential for assessing the financial impact and risk mitigation strategies.

Table 144 and Table 145 present detailed information on the estimated annual financial losses to buildings and population in Weber County caused by thunderstorm wind, lightning, riverine flooding, and hail.

These data provide an overview of the projected economic impact of thunderstorms on the area, considering both structural damage to buildings and potential effects on the population.

Table 143: Thunderstorm Risk Exposure Value, Weber County[221]

Hazard	Building Value	Population Equivalence	Population	Agriculture	Total
Hail	$42,643,343,203	$3,041,032,800,000	262,158.00	$56,710,116	$3,083,732,853,319
Lightning	$42,643,343,203	$3,041,032,800,000	262,158.00	n/a	$3,083,676,143,203
Strong Wind	$42,643,343,203	$3,041,032,800,000	262,158.00	$56,710,116	$3,083,732,853,319
Riverine Flooding	$420,802,070	$26,373,644,650	2,273.59	$3,841,920	$26,798,288,640
Total	$128,350,831,679	$9,149,472,044,650	$788,748	$117,262,152	$9,277,940,138,481

[221] FEMA, "National Risk Index Weber County Utah." https://hazards.fema.gov/nri/report/viewer?dataLOD=Counties&dataIDs=C49057#SectionExpectedAnnualLoss

Table 144: Expected Annual Loss from Storm-Related Events, Weber County[222]

	Building Value	Population Equivalence	Population	Agriculture	Total
Hail	$770	$60,923	0.01	$25	$61,718
Lightning	$4,912	$103,163	0.01	n/a	$108,074
Strong Wind	$1,746,158	$186,279	0.02	$4,655	$1,937,093
Riverine Flooding	$26,377	$573,209	0.05	$271	$599,857
Totals	$1,778,217	$923,574	0.09	$4,951	$2,706,742

Table 145: Expected Annual Loss from Storm-Related Events to Jurisdictions in Weber County[223]

Jurisdiction	Hazard	Expected Annual Loss	Exposure Loss	Vulnerability Score
Farr West	Hail	$1.2K	$63B	Relatively Low
	Lightning	$1.8K	$63B	Relatively Low
	Strong Wind	$38K	$63B	Relatively Moderate
	Riverine Flooding	0	0	N/A
Harrisville	Hail	$1.1K	$56B	Relatively Low
	Lightning	$1.6K	$56B	Relatively Low
	Strong Wind	$28K	$56B	Relatively Moderate
	Riverine Flooding	26K	1.2B	Relatively Low
Hooper	Hail	$1.4K	$71B	Relatively Low
	Lightning	$2.3K	$71B	Relatively Low
	Strong Wind	$40K	$71B	Relatively High
	Riverine Flooding	$3.3K	$147M	Relatively Low
Huntsville	Hail	$954K	$47B	Very Low
	Lightning	$1.7K	$47B	Relatively Low
	Strong Wind	$54K	$47B	Relatively High
	Riverine Flooding	$37K	$1.6B	Relatively Moderate
	Lightning	$903	$28B	Very Low
	Strong Wind	$20K	$28B	Relatively Moderate

[222] Ibid.
[223] Ibid.

Jurisdiction	Hazard	Expected Annual Loss	Exposure Loss	Vulnerability Score
Ogden	Riverine Flooding	$21K	$892M	Relatively Low
	Hail	$612	$30B	Very Low
	Lightning	$1.1K	$30B	Very Low
	Strong Wind	$44K	$30B	Relatively High
Plain City	Riverine Flooding	$5.2K	$216M	Relatively Low
	Hail	$1.5K	$77B	Relatively Low
	Lightning	$2.4K	$77B	Relatively Low
	Strong Wind	$48K	$77B	Relatively High
Pleasant View	Riverine Flooding	$7.7K	$345M	Relatively Low
	Hail	$1.4K	$68B	Relatively Low
	Lightning	$2K	$68B	Relatively Low
	Strong Wind	$47K	$68B	Relatively High
Riverdale	Riverine Flooding	$0	$580	Very Low
	Hail	$1.2K	$61B	Relatively Low
	Lightning	$2K	$61B	Relatively Low
	Strong Wind	$43K	$61B	Relatively High
Roy	Riverine Flooding	$11K	$476M	Relatively Low
	Hail	$1.4K	$71B	Relatively Low
	Lightning	$2.3K	$71B	Relatively Low
	Strong Wind	$34K	$71B	Relatively Moderate
South Ogden	Riverine Flooding	$0	$0	N/A
	Hail	$746	$37B	Very Low
	Lightning	$1.3K	$37B	Relatively Low
	Strong Wind	$18K	$37B	Relatively Moderate
Uintah	Riverine Flooding	$6.4K	$292M	Relatively Low
	Hail	$1.6K	$80B	Relatively Low
	Lightning	$2.7K	$80B	Relatively Low
	Strong Wind	$44K	$80B	Relatively High
Washington Terrace	Riverine Flooding	$38K	$1.7B	Relatively Moderate
	Hail	$1.3K	$67B	Relatively Low
	Lightning	$2.2K	$67B	Relatively Low

Jurisdiction	Hazard	Expected Annual Loss	Exposure Loss	Vulnerability Score
West Haven	Strong Wind	$37K	$67B	Relatively Moderate
	Riverine Flooding	$4	`$68K	Very Low
	Hail	$1.1K	$55B	Relatively Low
	Lightning	$1.8K	$55B	Relatively Low
	Strong Wind	$33K	$55B	Relatively Moderate
	Riverine Flooding	$0	$0	N/A

Table 146: Impacts of Thunderstorms on Jurisdictions in Weber County

Plan Participant Name	Impacts
Weber County	Thunderstorms may include high winds, which could impact power, shelter, roadways, and buildings. Secondary impacts include sheltering needs and economic losses.
Farr West City	Thunderstorms could bring flooding at torrential levels. These storms could affect roads, farms, businesses, homes and many other facilities and properties. The hazards could be very extensive or benign in nature. The facilities, buildings and properties would take additional investigations to assess potential costs.
City of Harrisville	Thunderstorms with heavy rainfall can cause flooding for residents in lower elevations. Being located below North Ogden and Ogden the storm water runs down to Harrisville through several canals. This puts any residents near those canals at a potential flood risk if the stormwater overflows the canal. Most canals run through residential neighborhoods.
City of Hooper	Structures could be damaged by high winds or localized flooding. Storm drains are in need of repairs in many areas of the city. Large amounts of water could cause these areas to fail prematurely. Power lines can be downed, disrupting energy services.
City of Huntsville	Thunderstorms could cause storm and wind damage to people and buildings. Power systems can be damaged by high winds. Roadways may be affected by debris or localized flooding. Damage may result in economic losses.
City of Ogden	Thunderstorms could cause high microbursts and flooding issues. Structures and systems including power systems can be damaged by high winds and localized flooding. Roadways could be blocked, and there could be economic losses.

Plan Participant Name	Impacts
City of Pleasant View	Structures across the city could be damaged. Power systems could be damaged by high winds. Roadways may be affected by debris or localized flooding. Damage may result in economic losses.
City of Riverdale	The utility system could be damaged, resulting in loss of power.
City of Roy	There is risk of lightning-caused fires, flooding, and wind damage to buildings and City facilities. Systems including transportation and power may be damaged. Economic losses could occur.
City of South Ogden	Intense rainfall from thunderstorms can lead to flash flooding, affecting low-lying residential areas. Elderly residents may have difficulty evacuating quickly and may suffer from water damage to their homes and belongings. Transportation routes and power systems could be blocked or damaged. Economic losses could occur.
City of Uintah	Buildings and infrastructure, particularly power lines, can be damaged by falling trees. Power outages may occur if power lines are damaged. Residents can be injured by falling trees as well as complications due to power outages.
City of Washington Terrace	Structures may be damaged by localized flooding and downed trees. Power systems can be damaged by high winds. Roadways may be affected by debris or localized flooding. Damage may result in economic losses.
City of West Haven	There is a risk to the power grid from downed power lines, poles, and trees. Buildings may be damaged. Residents may be injured. Roads and power systems may be clocked or damaged.
Pineview Water System	Water system operation could be disrupted by power outages. Customers could be impacted.
Roy Water Conservancy District	Water system operation could be disrupted by power outages. Customers could be impacted.
Taylor West Weber Water District	Water system operation could be disrupted by power outages. Customers could be impacted.
Ogden School District	Employees, students, and residents in the boundary area could be injured. Structures may be damaged. Systems including roads and power could be impacted. School operations could be disrupted.

Plan Participant Name	Impacts
Weber Morgan Health Department	Weather-related impacts to operations due to power outages and structural damages.
Weber School District	There are risks to individuals and school properties. Structures may be damaged. Students and employees could be injured. School operations may be disrupted if transportation routes and/or power systems are affected.
West Warren-Warren Water Improvement District	Power systems could be affected, and this would impact district operations. Water pumps and storm flow of water could be stopped due to power outages. Outages would disrupt services in the area.
Weber Fire District	Storms could damage any structures in the district's area. The district may be called upon to respond to an event. Transportation routes may be affected, potentially impacting effective district operations.
Central Weber Sewer Improvement District	Wastewater collection and treatment structures could be damaged. Operations of wastewater collection and treatment facilities could be disrupted. Disruptions would impact customers.

Changes in Development

Potential development in Weber County, Utah, such as urbanization and construction, can influence the jurisdiction's vulnerability to thunderstorms in several ways. Urban areas with large amounts of impervious surfaces, such as roads and buildings, can experience increased runoff during heavy rainfall, which may lead to flash flooding. In addition, deforestation and land clearing for development can impact the local climate and potentially lead to changes in precipitation patterns. Furthermore, the construction of infrastructure, such as drainage systems and buildings, can affect the area's susceptibility to damage from thunderstorm-related hazards, such as high winds and hail.

Figure 143 shows projected areas of development in Weber County from 2023 to 2028.

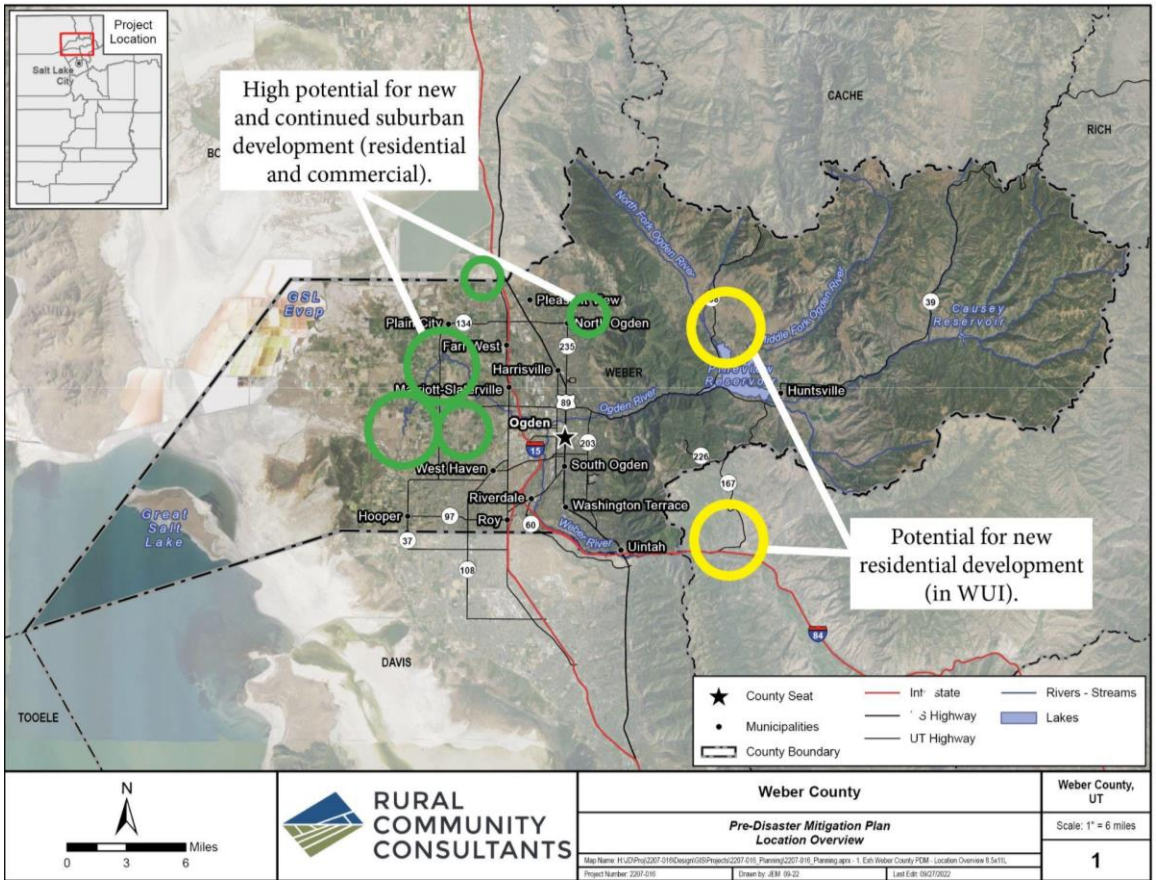


Figure 143: Weber County Land Use Map, 2023–2028

Weber County is relatively safe from the impact of thunderstorms because of its low risk of such weather conditions. Therefore, its vulnerability from development will not be greatly affected by thunderstorms. This makes Weber County an ideal location for development, as there is a lower likelihood of damage caused by thunderstorm-related impacts. Since thunderstorms can damage structures like buildings and homes, an area with a low risk of such weather conditions is desirable for development.

Table 147: Thunderstorm Changes in Development Summary

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Weber County	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from thunderstorms.
Farr West	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from thunderstorms.
Harrisville	Stayed the Same	The city's risk of thunderstorms has not changed. The city's old infrastructure

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
		buildings must be equipped with lighting protection devices.
Hooper	Increased	Increased risk because more homes are being built.
Huntsville	Decreased	Decreased risk because of more individual emergency preparedness.
Ogden	Increased	Increased risk because storm drains need repair. There is an ongoing project to help update systems.
Plain City	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from thunderstorms.
Pleasant View	Stayed the Same	Development that has occurred is not anticipated to have impacted this hazard type.
Riverdale	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from thunderstorms.
Roy	Increased	Development has increased runoff volumes. Some areas have been developed adjacent to the Howard Slough, increasing the risk of flooding.
South Ogden	Decreased	Vulnerability has decreased with windstorm events that have allowed South Ogden to put the emergency plan into action.
Uintah	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from thunderstorms.
Washington Terrace	Decreased	The city has mitigated localized flooding with improved flood management infrastructure.
West Haven	Stayed the Same	Since the last plan update, vulnerability has stayed the same, due to no changes in development.
Ogden School District	Decreased	Decreased risk because some facilities have added systems and generators.
Pineview Water Systems	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from thunderstorms.
Roy Water Conservancy District	Stayed the Same	Vulnerability has not changed, as there is no information to point to an increase or decrease with this issue.

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Taylor West Weber Water District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from thunderstorms.
Weber-Morgan Health Department	Stayed the Same	Since the last plan update, there have been no changes in development impacting risk due to thunderstorms.
Weber School District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from thunderstorms.
West Warren-Warren WID	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from thunderstorms.
Central Weber Sewer Improvement District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from thunderstorms.
Weber Fire District	Stayed the Same	Weber Fire District has backup generators at each station.

SECONDARY HAZARDS

Thunderstorms can have several secondary or cascading impacts, especially flooding. Heavy rainfall during thunderstorms can quickly saturate the ground, leading to flash floods and other forms of flooding. Thunderstorms can also cause power outages, as lightning strikes can damage power lines and other electrical equipment. In addition, strong winds associated with thunderstorms can damage buildings, trees, and other structures, potentially leading to injuries and loss of life. Hail, another common feature of thunderstorms, can damage crops, vehicles, and other property. Finally, thunderstorms can impact transportation, as heavy rains and high winds can make driving and flying more hazardous.

Tornado

Tornadoes are among the most violent storms on the planet. These rapidly rotating columns of air extend from a thunderstorm to the ground and appear as funnel clouds. Thunderstorms that produce tornadoes are often accompanied by lightning, strong winds, rains, and hail.[224] The most destructive tornadoes, EF5, have wind speeds over 200 mph and can cause massive devastation. The width of a tornado can range from just a few feet to over a mile, while the length of its path on the ground can range from a few hundred feet to hundreds of miles. It is important to note that tornadoes can change in size and shape throughout their lifespans, making them very unpredictable and dangerous.

Another concern in Weber County is downslope wind events, which can deliver winds equal to an F-1 or F-2 tornado but without rotational wind. Impacts to power, shelter, roadways, and buildings and secondary impacts of sheltering and economic loss have been seen throughout the County.

Supercell thunderstorms are the least common but most powerful type of thunderstorm. They can produce dangerous tornadoes that cause significant damage and loss of life. These large rotating thunderstorms have a vertical updraft called a mesocyclone, and they are created by wind shear in the atmosphere and a lifting mechanism that creates instability.[225] Wind shear refers to the change in wind speed and direction with height, which can create a rotating updraft inside a storm. The lifting mechanism can be a front, a dryline, or the sun's heat. Once a thunderstorm starts to rotate, it can sustain itself for hours and produce large hail, damaging winds, and tornadoes. Table 148 lists the categories of tornadoes and their characteristics.

Table 148: Characteristics of Tornadoes, Based on Ratings[226]

Rating	Frequency	Wind Speed	Damage Level	Strength
EF0	53.5%	65–85 mph	Minor	Weak
EF1	31.6%	86–110 mph	Moderate	Weak
EF2	10.7%	111–135 mph	Considerable	Strong
EF3	3.4%	136–165 mph	Severe	Strong
EF4	0.7%	166–200 mph	Devastating	Violent
EF5	0.1%	200+ mph	Incredible	Violent

[224] FEMA, "Tornado| What." https://community.fema.gov/ProtectiveActions/s/article/Tornado-What#:~:text=Protective%20Actions&text=A%20tornado%20is%20a%20violently%20rotating%20column%20of%20air%20that,in%20thunderstorms%20that%20produce%20tornadoes.
[225] National Weather Service, "What is a Supercell?" https://www.weather.gov/ama/supercell
[226] Iowa's News Now, "Severe Weather Awareness: Tornadoes and Safety." https://cbs2iowa.com/news/local/severe-weather-awareness-tornadoes-and-safety

Location

Tornadoes can happen anywhere, but the United States experiences around 75% of all tornadoes worldwide. Utah has a very low risk of tornadoes, with Sanpete County having the most activity—six occurrences since 2000.[227] Although Weber County is relatively safe from tornadoes, it has experienced two of them since the previous plan and eight since 1958 (see Figure 144).[228] The whole County is at risk of tornadoes.

Magnitude/Extent

The magnitude or extent to which a tornado hits an area can vary greatly. Some of the most important factors on the size and impact of a tornado are its wind speed and direction, the size and shape of the tornado itself, and the terrain and landscape of the surrounding area. Other factors that can play a role include the density and type of buildings or other structures in the area, the presence of trees or other natural barriers, and the overall weather conditions when the tornado strikes. Ultimately, the severity of a tornado and the extent of its impact depend on a complex set of variables. It can be difficult to predict its exact size and scope, even with the most advanced meteorological models.

The magnitude or severity of a tornado depends on wind speed, which is categorized by the Enhanced Fujita Scale. Tornadoes are typically considered "significant" for EF2 or EF3 on the Fujita Scale and "violent" for EF4 and EF5. Table 149 shows the Enhanced Fujita Tornadoes Scale, which measures tornado strength and associated damage. This type of tornado usually occurs around the perimeter of the storm and, most often, to the right and ahead of the storm path or the storm center as it comes ashore. These tornadoes commonly occur as part of large outbreaks and generally move in an easterly direction.

[227] Stacker, "Counties with the Most Tornadoes in Utah." https://stacker.com/utah/counties-most-tornadoes-utah
[228] National Centers for Environmental Information, "Storm Events Database." https://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28C%29+Tornado&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=1950&endDate_mm=01&endDate_dd=31&endDate_yyyy=2024&county=WEBER%3A57&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=49%2CUTAH

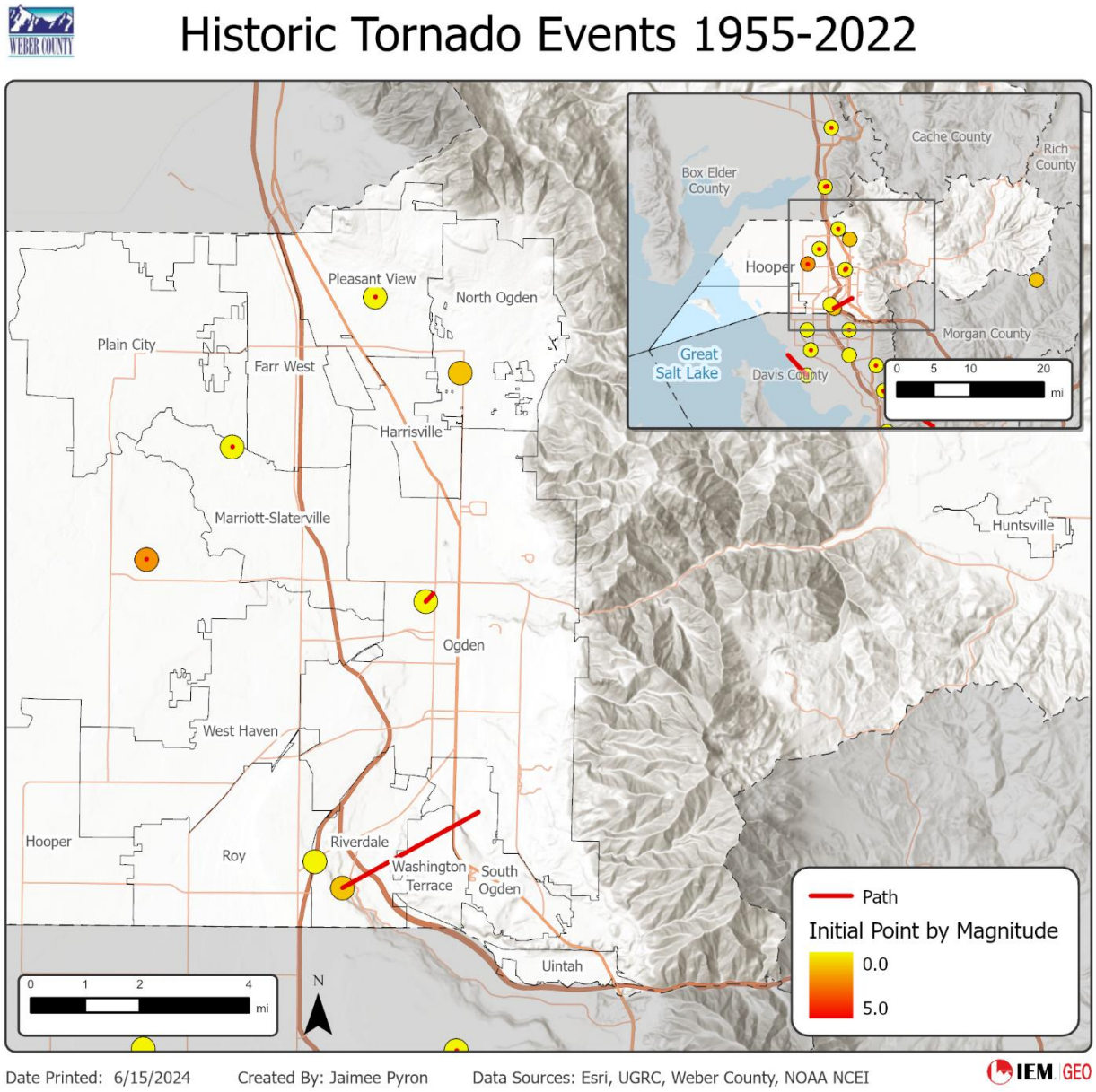


Figure 144: Tornado Events in Weber County, 1955–2022

Table 149: Enhanced Fujita Scale[229]

Category	Damage Level	3-Second Gust	Damage Done	Photo Example
EF0	Light	65–85 mph	Some damage to chimneys, branches broken off trees, shallow-rooted trees pushed over, and sign boards damaged.	

[229] National Oceanic and Atmospheric Administration, Enhanced Fujita Tornado Damage Scale (noaa.gov)

Category	Damage Level	3-Second Gust	Damage Done	Photo Example
EF1	Moderate	86–110 mph	Peeling surfaces off roofs, mobile homes pushed off foundations or overturned, moving autos pushed off the road; attached garages may be destroyed.	
EF2	Significant	111–135 mph	Roofs of frame houses torn off, mobile homes demolished, boxcars overturned, large trees snapped or uprooted, high-rise windows broken and blown in, light objects become missiles.	
EF3	Severe	136–165 mph	Well-constructed houses had their roofs and some walls torn off, trains overturned, most trees in the forest uprooted, and heavy cars lifted off the ground and thrown.	
EF4	Devastating	166–200 mph	Well-constructed houses leveled, structures with weak foundations blown away some distance, cars thrown, and large missiles generated.	
EF5	Incredible	200+ mph	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile-sized missiles flew more than 100 meters (109 yards); trees debarked; steel-reinforced concrete structures badly damaged.	

Before 2005, the magnitude of a tornado was determined with the traditional version of the Fujita Scale (Table 150). Since February 2007, the Enhanced Fujita Scale has replaced the Fujita Scale, which retains the same basic design and six strength categories. The newer scale reflects more refined assessments of tornado damage surveys, standardization, and damage consideration to a wider range of structures.

Table 150: Original Fujita Scale[230]

F-Scale Number	Intensity	Wind Speed (Mph)	Description	Percent of Appraised Structure Value Lost Due To Damage
F0	Gale Tornado	40–72	Some damage to chimneys; broken tree branches; shallow-rooted trees pushed over; sign boards damaged.	None Estimated
F1	Moderate Tornado	73–112	The lower limit is the beginning of hurricane wind speed. Roof surfaces peeled off; mobile homes pushed off foundations or overturned; moving autos pushed off roads; attached garages may be destroyed.	0%–20%
F2	Significant Tornado	113–157	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light objects become missiles.	50%–100%
F3	Severe Tornado	158–206	Roofs and some walls of well-constructed houses torn off; trains overturned; most trees in the forest uprooted.	100%
F4	Devastating Tornado	207–260	Well-constructed homes leveled; structures with weak foundations blown some distance away; cars thrown; large missiles generated.	100%
F5	Incredible Tornado	261–318	Strong frame houses carried considerable distances and disintegrated; automobile-sized missiles thrown more than 330 yards; trees debarked; steel-reinforced concrete badly damaged.	100%

The Fujita and Enhanced Fujita scales should be referenced when reviewing previous occurrences since tornado events before 2007 follow the original Fujita Scale. The largest magnitude reported in the planning area was F3 on the Fujita Scale, a "Severe Tornado." Based on the planning area's location, the area could experience tornadoes up to EF3.

Tornadoes could occur in many areas of the county. Some jurisdictions are excluded due to very low risk, such as Farr West, Hooper, Huntsville, North Ogden, Roy, Uintah, and North View Fire District.

[230] National Weather Service, "The Fujita Scale." https://www.weather.gov/ffc/fujita

Previous Occurrences

Based on the FEMA Disaster Declarations Database, Weber County has received no designation for tornado disaster declarations since the last plan update.

As noted in Table 151, the events in Weber County have ranged from an unknown intensity on the Enhanced Fujita Scale (EFU) and EF2. Descriptions of some events follow the table.

Table 151: Tornadoes in Weber County, 1958–2023[231]

Jurisdiction	Date	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Marriott–Slaterville	0728/2021	EFU	0	0	0	0
Roy	09/22/2016	EF1	0	5	$2.0M	0
Ogden	08/20/1998	F1	0	6	$10,000	$2000
Roy	05/21/1998	F0	0	0	$18,000	$2000
North Ogden	05/29/1996	F1	0	1	$600,000	0
Pleasant View	12/05/1995	F0	0	0	$7,500	0
Weber County	04/23/1990	F0	0	1	$25,000	0
Weber County	08/14/1965	F2	0	1	$250,000	0
Total			0	14	$2,910,500	$4000

September 22, 2016: A fast-moving thunderstorm spurred a tornado that hit Weber County, damaging several homes and injuring one person. The destruction was mainly concentrated in Washington Terrace and Riverdale, and it is unclear whether there was one tornado that touched down twice or two separate tornadoes. Several dozen homes sustained significant damage, including 10 that were uninhabitable. The power poles and lines in the area have been completely knocked down, leaving 37,000 people from Weber and Davis counties without electricity. One person suffered a head injury but is expected to recover. Severe weather caused destruction throughout the state on Thursday, including a tornado in Panguitch

[231] National Centers for Environmental Information, "Storm Events Database." https://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28C%29+Tornado&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=1950&endDate_mm=01&endDate_dd=31&endDate_yyyy=2024&county=WEBER%3A57&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=49%2CUTAH

and heavy tree damage in Riverdale. A group of teenagers narrowly escaped the path of the tornado in Riverdale.[232]

August 20, 1998: A tornado touched down in the Weber Memorial Campground in eastern Weber County. Six people camping were injured by flying debris.

Probability of Future Occurrences

The probability of a tornado hitting Weber County is 0.14 based on 8 tornadoes impacting the area over the previous 59 years, or **Unlikely**. The range of intensity that the Weber County planning area, including all participating jurisdictions, would be expected to mitigate is a tornado event with a low to severe risk—EF0 to EF3 (see Figure 145).

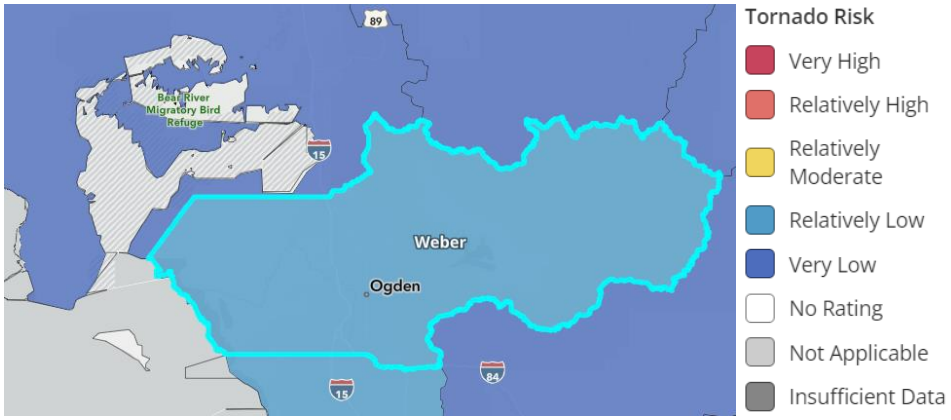


Figure 145: Tornado Risk to Weber County[233]

It is difficult to predict the exact probability of future tornadoes in Weber County, as they are rare events in the state. However, Utah's tornadoes could become more frequent with the changing climate. Climate change may lead to more extreme weather conditions, including stronger and more frequent thunderstorms, which are precursors to tornadoes.

Climate change is affecting weather patterns around the world, and one of the ways it may increase the risk of tornadoes in Utah and Weber County is through changes in temperature and humidity. As the climate warms, it can lead to more atmospheric moisture, creating more unstable conditions favorable for tornado formation. Changes in wind patterns and atmospheric circulation can also contribute to the development of tornadoes. Although the relationship between climate change and tornadoes is complex and is still being studied, many scientists believe that we may see an increase in the frequency and intensity of tornadoes due to climate change.

[232] KSL.com, "Tornado Touches Down in Weber County as Wild Weather Roars through State." https://www.ksl.com/article/41582818/tornado-touches-down-in-weber-county-as-wild-weather-roars-through-state
[233] National Risk Index, "Tornado." https://hazards.fema.gov/nri/tornado

Vulnerability Analysis

Table 152: Tornado Vulnerability Assessment

Plan Participant Name	Asset Type	Description
Weber County	Structures	Structures and community lifelines of all types across the County could be affected by a tornado. Homes like mobile homes are at a greater risk to this hazard.
	Systems	A range of systems including transportation, water, communications, and energy are at-risk across the County from damaging winds from tornadoes.
	Populations	Everyone in the affected area would be at risk from a tornado.
	Other	Tornadoes can affect the local economy as well as put a financial burden on local government due to increased sheltering and recovery needs.
Harrisville	Structures	Same as County
	Systems	Same as County
	Populations	Same as County. Many homes have basements for residents to shelter in, but many local businesses do not have places for people to shelter. There would be some difficulty notifying residents to shelter in place when a tornado touches down.
	Other	Same as County
Marriott-Slaterville	Structures	Same as County
	Systems	Same as County
	Populations	Same as County
	Other	Crops are at risk.
Ogden	Structures	Same as County

Plan Participant Name	Asset Type	Description
	Systems	Same as County
	Populations	Same as County
	Other	There is potential for major damage and loss of life in the city.
Plain City	Structures	Older structures could be affected by wind shear.
	Systems	Power lines could be damaged and power disrupted for residents. Lack of power would also affect sewer systems.
	Populations	Residents would be affected by power disruption.
	Other	None
Pleasant View	Structures	Prospect of City-wide impacts.
	Systems	Same as County
	Populations	Same as County
	Other	None
Riverdale	Structures	Businesses and residences are at risk
	Systems	Infrastructure is vulnerable to damage.
	Populations	Entire population is at risk.
	Other	None
South Ogden	Structures	Homes, particularly those without storm shelters or reinforced.
	Systems	Same as County
	Populations	Elderly residents face significant risks of injury or death and may have a more difficult time seeking shelter.

Plan Participant Name	Asset Type	Description
	Other	None
Ogden School District	Structures	School district facilities may be at risk to damage.
	Systems	Same as County
	Populations	Employees and students/residents within the district are at risk.
	Other	None
Washington Terrace	Structures	Homes, businesses and government buildings could be damaged.
	Systems	Power outages are likely. Streets may be shut down due to debris.
	Populations	Residents would be affected by power outages
	Other	None
West Haven	Structures	Damage to homes and other structures
	Systems	Entire city could be affected if power grid is disrupted from downed power lines, power poles, or trees. Other utility services may be compromised.
	Populations	Safety of residents is a concern.
	Other	None
Pineview Water System	Structures	None
	Systems	Concentrated damage to infrastructure including power, communications, and roads are possible.
	Populations	None

Plan Participant Name	Asset Type	Description
	Other	None
Roy Water Conservancy District	Structures	Facilities are at-risk.
	Systems	Infrastructure, including water systems and power, are at-risk.
	Population	None
	Other	None
Taylor West Weber Water District	Structures	District storage facilities could be at-risk.
	Systems	Disruption to power could affect operations.
	Population	None
	Other	None
Weber Morgan Health Department	Structures	Damage to the facilities could affect the health department's ability to provide services to the public.
	Systems	None
	Population	None
	Other	None
Weber School District	Structures	District facilities could be damaged
	Systems	Operations may be disrupted by power outages or blocked transportation routes.
	Populations	Students and employees could be affected.
	Other	School activities may be affected.

Plan Participant Name	Asset Type	Description
West Warren-Warren Water Improvement District	Structures	District building could be damaged.
	Systems	Power outage could affect water pumps and water delivery.
	Populations	Customers would be affected if water service was disrupted.
	Other	None
Central Weber Sewer Improve-ment District	Structure	Wastewater collection and treatment structures could be damaged.
	Systems	Structural damage could disrupt operations to customers.
	Populations	Disruption of service to district customers.
	Other	None
Weber Fire Dis-trict	Structure	Any residence or building in the district could be impacted.
	Systems	Same as County
	Populations	Residents anywhere in service area could be impacted.
	Other	None

Impacts

Although Weber County may be less vulnerable to tornadoes than other places, the potential impacts of a tornado could still be significant. Some possible impacts of a tornado hitting Weber County include damage to buildings and infrastructure, power outages, disruption of transportation, potential injuries, and loss of life. In addition, tornadoes can cause widespread destruction of homes and businesses, leading to significant economic impacts on the community.

Table 153 presents detailed data on the risk exposure values and the associated costs in the event of a tornado. This information is essential for assessing the financial impact and risk mitigation strategies.

Table 153: Risk Exposure Value for Tornadoes, Weber County[234]

Building Value	Population Equivalence	Population	Agricul-ture	Total
$42,643,343,203	$3,041,032,800,000	262,158.00	$56,710,116	$3,083,732,853,319

Table 154 and Table 155 present detailed information on the estimated annual financial losses to buildings and the population in Weber County caused by tornadoes. These data provide an overview of the projected economic impact of tornadoes on the area, considering both structural damage to buildings and the potential effects on the population.

Table 154: Expected Annual Loss from Tornadoes, Weber County[235]

Building Value	Population Equiva-lence	Population	Total
$240,963	$568,928	0.05	$264,000

Table 155: Expected Annual Loss from Tornadoes to Jurisdictions in Weber County[236]

Jurisdiction	Expected Annual Loss	Exposure Loss	Vulnerability Score
Harrisville	$15K	$56B	Relatively Low
Marriott–Slaterville	$13K	$40B	Very Low
Ogden	$13K	$30B	Very Low
Plain City	$18K	$77B	Relatively Low
Pleasant View	$18K	$68B	Relatively Low
Riverdale	$15K	$61B	Relatively Low
South Ogden	$9.3K	$37B	Very Low
Washington Terrace	$15K	$67B	Relatively Low
West Haven	$12K	$55B	Very Low

[234] FEMA, "National Risk Index Weber County Utah." https://hazards.fema.gov/nri/report/viewer?dataLOD=Counties&dataIDs=C49057#SectionExpectedAnnualLoss
[235] Ibid.
[236] Ibid.

Table 156: Impacts of Tornadoes on Jurisdictions in Weber County

Plan Participant Name	Impacts
Weber County	While not a common occurrence, tornados have and do happen in Weber County. The last event was in Washington Terrace in 2017. This event damaged 30+ homes and destroyed 2. Structures and community lifelines could be damaged or destroyed. Anyone exposed could be injured or killed by a tornado. The secondary impacts due to debris fields, loss of power and increased sheltering needs as well as economic impact to local jurisdictions and County will continue to present a problem.
City of Harrisville	Tornados can cause catastrophic damage and loss of life due to high winds and flying debris. A tornado touching down in Harrisville could cause significant damage. Many homes have basements for residents to shelter. Many local businesses do not have places for people to shelter while in the business. It would also be difficult to notify residents to shelter in place when a tornado touches down. Structures and systems all types could be damaged or destroyed and people could be injured or killed.
Marriot-Slaterville	Tornadoes could damage people, systems, and structures. Additionally, crops could be damaged, resulting in economic losses. Recovery costs including temporary housing costs also may be incurred.
City of Ogden	Tornadoes could cause potential major damage to structures and systems and loss of life in the city. Residents could be impacted by disruption of systems.
Plain City	Tornadoes are somewhat of a concern, as are wind shears. Since Plain City is so flat, they could affect older structures and power lines, knocking the power out for some time, affecting the residents and the sewer system without emergency backup power.
City of Pleasant View	Tornadoes could impact structures and systems, including power and sewer systems, citywide. Residents could be affected by power outages.
City of Riverdale	Infrastructure, businesses, and residential areas could be damaged or destroyed. Injuries and loss of life could occur.
City of South Ogden	Tornadoes can cause catastrophic damage to homes that are not reinforced or do not have storm shelters. Elderly residents may face significant risks of injury or death if they cannot seek adequate refuge in time.
City of Washington Terrace	Tornadoes are rare in this area. However, the city has experienced one tornado and felt the impact of streets being shut down and power outages throughout the city. Homes, businesses, and governmental buildings could be

Plan Participant Name	Impacts
	damaged or destroyed in a tornado. Residents could be injured or killed or affected by disruption to services such as power outages.
City of West Haven	Tornadoes could impact the power grid and down power lines, poles, and trees. Structures may be damaged or destroyed. People may be injured or killed. Disruption of services such as power outages also may impact residents.
Pineview Water System	Infrastructure impacts including from damage to power, communications, and road systems could impact Pineview Water System operations.
Roy Water Conservancy District	District facilities could be damaged or destroyed by a tornado. Infrastructure, including district owned and operated water systems as well as related power systems, could be damaged or destroyed. Disruptions in services could impact customers.
Taylor West Weber Water District	District storage facilities may be damaged or destroyed. Infrastructure such as power systems could be damaged or destroyed, impacting district operations.
Ogden School District	Employees, students, and residents within the boundary area could be injured. Structures may be damaged. Systems including roads and power could be impacted. School operations could be disrupted.
Weber Morgan Health Department	Buildings can be impacted. Tornadoes can damage or destroy the health department building or cause power outages.
Weber School District	There are risks to individuals and school properties. Structures may be damaged or destroyed. Students and employees could be injured. School operations may be disrupted if transportation routes and/or power systems are affected.
West Warren-Warren Water Improvement District	Tornadoes can damage or destroy the district building or cause power outages for water pumps. Outages would disrupt services in the area.
Weber Fire District	Storms could damage any structures in the district's area. The district may be called upon to respond to an event. Transportation routes may be affected, potentially impacting district operations.

Plan Participant Name	Impacts
Central Weber Sewer Improvement District	Wastewater collection and treatment structures could be damaged. Operations of wastewater collection and treatment facilities could be disrupted. Disruptions would impact customers.

Changes in Development

Weber County has experienced significant development since the last planning phase. There has been an increase in residential and commercial construction projects and infrastructure improvements. However, despite these developments, the county's overall vulnerability remains unchanged.

The expansion of urban areas and infrastructure has altered the landscape of Weber County, but the region's susceptibility to tornadoes has not shifted significantly. While development may have altered the exposure of certain areas to tornado risk, recent developments have not drastically impacted the region's overall vulnerability.

Table 157: Tornadoes Changes in Development Summary

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Weber County	Stayed the Same.	Since the last plan update, there have been no changes in development that impact risk from tornadoes.
Harrisville	Decreased	While a tornado could cause catastrophic damage to the city, tornadoes do not touch down in Utah very often. While it is a concern, it is also a lower concern for the town. The city has adopted new building codes.
Marriott-Slaterville	Increased	Stressed power grid is at risk.
Ogden	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from tornadoes.
Plain City	Stayed the Same	The risk has remained the same. The City has a plan to add two backup emergency

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
		generators each year for sewer lift stations.
Pleasant View	Stayed the Same	Development that has occurred is not anticipated to have impacted this hazard type.
Riverdale	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from tornadoes.
South Ogden	Decreased	The city is working to become more resilient and prepared for all events.
Washington Terrace	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from tornadoes.
West Haven	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from tornadoes.
Ogden School District	Decreased	There is a decreased risk because of renovations and new construction with more stable structures and damage-resistant materials.
Pineview Water Systems	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from tornadoes.
Roy Water Conservancy District	Stayed the Same	Vulnerability has not changed, as there is no information to point to an increase or decrease with this issue.
Taylor West Weber Water District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from tornadoes.
Weber-Morgan Health Department	Stayed the Same	Since the last plan update, there have been no changes in development to impact the risk to tornado.

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Weber School District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from tornadoes.
West Warren-Warren WID	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from tornadoes.
Central Weber Sewer Improvement District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from tornadoes.
Weber Fire District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from tornadoes.

SECONDARY HAZARDS

Secondary hazards caused by tornadoes include flooding because of heavy rainfall, fires from damaged gas lines or electrical systems, and dangerous debris propelled by high winds. Power outages, structural damage, and public health risks also can result from tornadoes.

Wildfire

Wildfires are uncontrolled blazes that ravage wildland vegetation, often in rural settings. These fires are not confined to a particular region or environment and can occur in a range of ecosystems, such as forests, grasslands, and savannas. The impacts of Wildfires are significant and can be catastrophic. They can cause extensive damage to natural habitats, wildlife, and property. They pose a serious threat to human life and safety and are a continuous threat to Weber County's residents, livestock, and infrastructure.

In the 2024 SHMP, Wildfires are classified as Wildland and Wildland–Urban Interface (WUI). Wildfires occur in areas where development is essentially nonexistent, except for roads, railroads, and power lines.[237] The WUI is where residential areas meet wildland areas. It is also known as the interface zone (or I-Zone), and wildfires there present a serious threat to people and property. The urban aspect includes homes, schools, storage areas, recreational facilities, transmission lines, and commercial buildings. Wildland refers to unincorporated areas, including hills, benches, plateaus, and forests. Homes are built on benches adjacent to wildland areas. WUI fires materialize in a geographical area where structures and other human development adjoin wildlands. A fireshed is an area that will adversely affect a community or high-value resource and/or asset if ignited.

Location

Three basic elements are needed for a fire to occur in a wildland area: (1) a heat source, (2) oxygen, and (3) fuel ignition. Sources for Wildfires can be natural, accidental, or incendiary. In Utah, variables that influence Wildfire risk include sources of vegetation fuel, snow totals, precipitation, ground moisture saturation, and temperature. Contributing factors to Wildfire ignition include the existence of vegetation, the types of topography, and the weather conditions, all of which influence how quickly a fire can grow. Weber County land cover types include open waters, herbaceous wetlands, woody wetlands, deciduous forest, mixed forest, shrub/scrub lands, and land developed at a low, medium, or high density.[238]

[237] 2024 Utah State Hazard Mitigation Plan, "Wildfire Hazards Profile", State of Utah Hazard Mitigation Plan | State of Utah Hazard Mitigation

[238] 2024 Utah State Hazard Mitigation Plan, "Wildfire Hazards Profile", State of Utah Hazard Mitigation Plan | State of Utah Hazard Mitigation

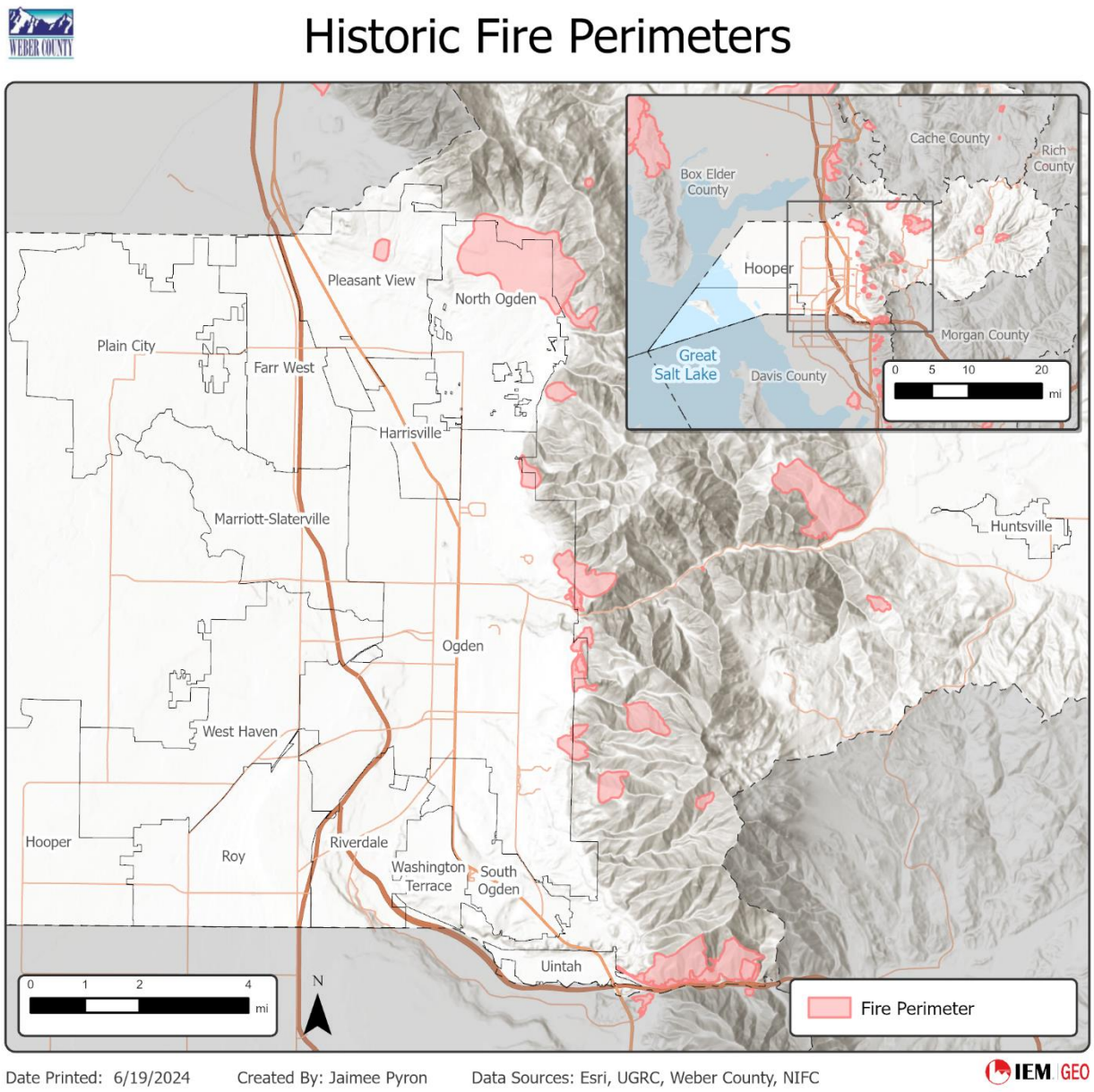


Figure 146: Locations of Wildfires in Weber County

Magnitude/Extent

The National Fire Danger Rating System (NFDRS) allows fire managers to estimate today's or tomorrow's fire danger for a given area. It combines the effects of existing and expected states of selected fire danger factors into one or more qualitative or numeric indices that reflect an area's fire protection needs. It links

an organization's readiness level (or pre-planned fire suppression actions) to the potential fire problems of the day.[239]

The NFDRS uses five different color-code levels to identify fire potential to understand the current conditions and help mitigate actions to prevent human-caused wildfires.

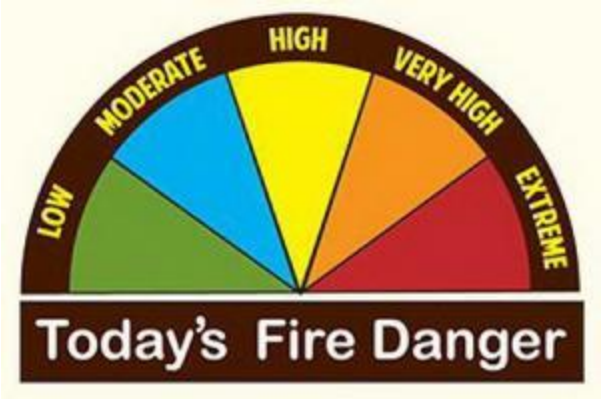


Figure 147: Color-Codes for National Fire Danger Rating System[240]

Fire Danger Level: Low

When the fire danger is "low" it means that fuels do not ignite easily from small embers, but a more intense heat source, such as lightning, may start fires in duff or dry rotten wood. Fires in open, dry grasslands may burn easily a few hours after a rain, but most wood fires will spread slowly, creeping or smoldering. Control of fires is generally easy.

Fire Danger Level: Moderate

When the fire danger is "moderate" it means that fires can start from most accidental causes, but the number of fire starts is usually pretty low. If a fire does start in an open, dry grassland, it will burn and spread quickly on windy days. Most wood fires will spread slowly to moderately. Average fire intensity will be moderate except in heavy concentrations of fuel, which may burn hot. Fires are still not likely to become serious and are often easy to control.

Fire Danger Level: High

When the fire danger is "high", fires can start easily from most causes and small fuels (such as grasses and needles) will ignite readily. Unattended campfires and brush fires are likely to escape. Fires will spread easily, with some areas of high-intensity burning on slopes or concentrated fuels. Fires can become serious and difficult to control unless they are put out while they are still small.

[239] United States Department of Agriculture-Forest Service, 2024, "National Fire Danger Rating System", Francis Marion and Sumter National Forests - Home
[240] IBID

Fire Danger Level: Very High

When the fire danger is "very high", fires will start easily from most causes. The fires will spread rapidly and have a quick increase in intensity, right after ignition. Small fires can quickly become large fires and exhibit extreme fire intensity, such as long-distance spotting and fire whirls. These fires can be difficult to control and will often become much larger and longer-lasting fires.

Fire Danger Level: Extreme

When the fire danger is "extreme", fires of all types start quickly and burn intensely. All fires are potentially serious and can spread very quickly with intense burning. Small fires become big fires much faster than at the "very high" level. Spot fires are probable, with long-distance spotting likely. These fires are very difficult to fight and may become very dangerous and often last for several days.

Wildfires remove vegetation, which can cause slope failure, erosion, water runoff, and depletion of wildlife resources. The three conditions that affect fire behavior are topography, vegetation, and weather. Topography includes such factors as slope, aspect, and elevation. Fires spread faster upslope because the fuels are closer to the flames on the upslope. The heat from a fire moves uphill and dries fuels in front of the fire, allowing for easier ignition. The aspect of slope dictates moisture content. In other words, the sun dries out fuels on south- and west-facing slopes more than on north- and east-facing slopes. Elevation and weather are interrelated because, generally, higher elevations have cooler temperatures and higher relative humidity. Elevation also determines the types of vegetation present. Figure 148 presents data on human-caused wildfires and the numbers of fires from October to May by year.

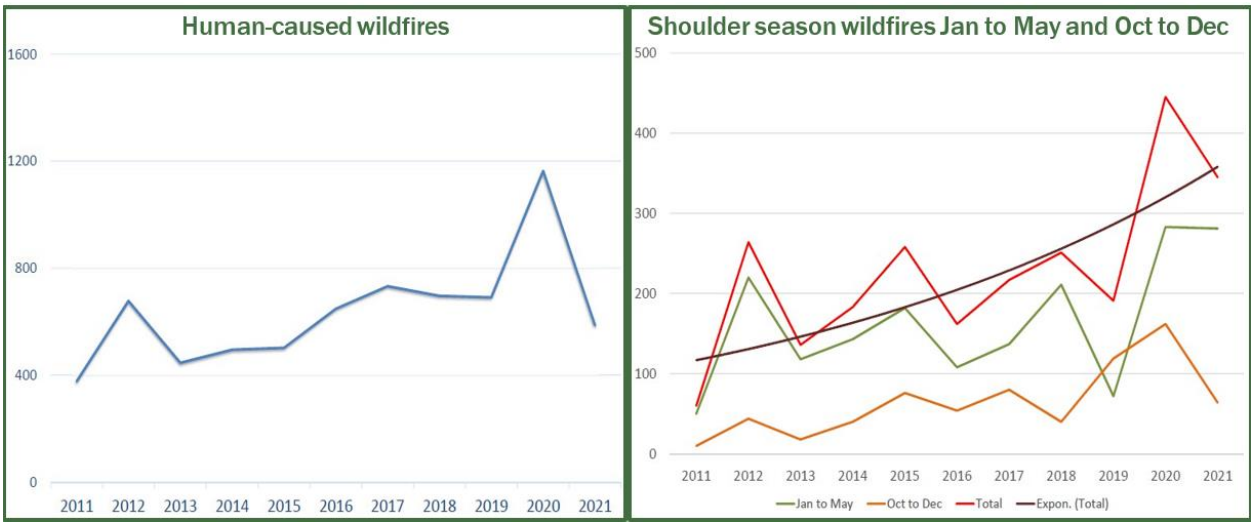


Figure 148: Wildfire Data for Utah, 2011–2021[241]

Vegetation plays a major role in the speed at which a fire spreads. Light grasses burn rapidly, and heavy, dense fuels burn slowly but with greater intensity. The five major fuel types in Utah's vegetation are

[241] Utah Division of Forestry, Fire and State Lands, 2022, "Fire Program Overview and Strategic Plan," Catastrophic Wildfire Risk Reduction | Utah DNR – FFSL (Forestry, Fire and State Lands)

grass/sagebrush, pinion-juniper, mountain bush, hardwoods, and softwoods. The grass/sagebrush area poses a serious threat because people underestimate the danger of Wildfires in this area. These fires burn rapidly across thousands of acres and pose a serious threat to both property and life. Pinion-juniper fuel does not normally burn much, except when conditions are hot, dry, and windy. When a fire does occur here, it burns intensely and spreads rapidly. In mountain brush, commonly found in Utah's foothills, moderate to extreme fire conditions are present. This type of fuel burns hot and fast. Hardwood forest and softwood (deciduous) fuel types are generally less risky.

Size, continuity, and compactness of fuel affect how quickly a fire spreads. Large fuels do not burn as readily as smaller fuels and need more heat to ignite. Small fuels, on the other hand, ignite more easily, and fire spreads more rapidly through them. Continuity refers to how fuel is arranged horizontally. Fuels that are broken up burn unevenly and more slowly than fuels that are uniform. Compactness refers to how fuel is arranged vertically. Tall, deep fuels have more oxygen available, so they burn more rapidly. Less oxygen is available in compact fuels, such as leaf litter and stacked logs, so they burn more slowly.

Weather factors include temperature, humidity, precipitation, and wind. Weather affects the ease with which a fuel ignites, the intensity at which it burns, and how easy or difficult it will be to control the fire. High temperatures increase fire danger because they heat fuels and reduce water content, which increases flammability. Humidity influences fuel ignition and how intensely fuel burns. A decrease in relative humidity causes fuels to dry, promoting easier ignition and more intense burning. Wind speed can increase burning intensity and the direction in which the fire moves. Wind carries heat from a fire into unburned fuels, drying them out and causing them to ignite more easily. The wind may also blow burning embers into unburned areas well ahead of the main fire, starting spot fires.

Figure 149 illustrates the key factors that make an area vulnerable to Wildfire: vegetation and fuel sources, possible ignition sources, topography, and weather conditions.[242]

[242] RiskFactor.Com, 2024, "Key Factors that Make an Area Vulnerable to Wildfire," Sparks, NV Wildfire Map and Climate Risk Report | Risk Factor

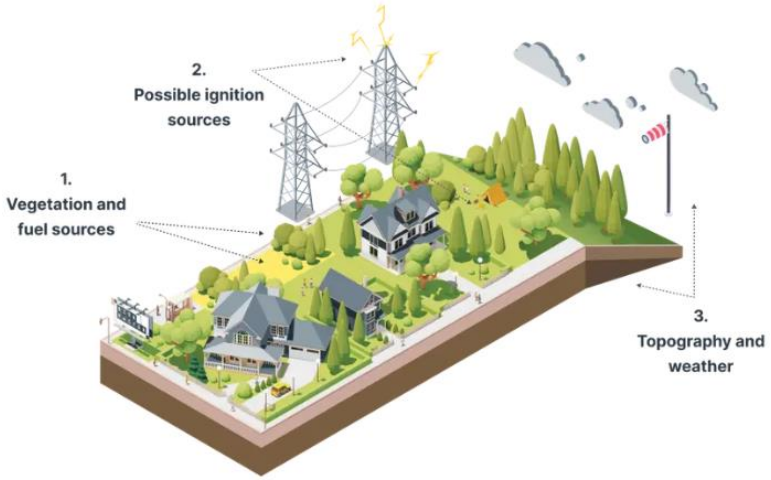


Figure 149: Key Factors that Make an Area Vulnerable to Wildfire[243]

Wildfire risk is present in many areas of the county. A few jurisdictions have minimal or no risk from wildfire and are excluded from this hazard, including Roy and Roy Water Conservancy District.

Previous Occurrences

Based on the FEMA Disaster Declarations Database, Weber County has received no designation for wildfire disaster declarations since the last plan update.

- **July 2014** – A fire started in the steep rock terrain east of Ogden in Weber County. The incident was named the Indian Fire, and it was suspected to be human caused. The fire was a creeping and smoldering fire fueled by grass, oak brush, and timber. The fire burned 50 acres of US Forest Service land according to GPS mapping. Homes in the foothills were threatened, and about 20 homes were evacuated. This fire highlighted the likely hazard of Wildfire in the WUI areas of Weber County.
- **July 22, 2016** – A relatively small bushfire near Pleasant View caused $250,000 in damage to homes and other structures. A bushfire began near a field near 1100 West and 4300 North in Pleasant View, and eventually grew to 89 acres. The fire caused significant damage to two homes, two sheds, and a barn. It burned the attic of one home and damaged the vinyl porch and siding of the other home.
- **September 5–10, 2017** – The Uintah fire was sparked by a downed power line near the mouth of Weber Canyon and spread rapidly because of strong easterly canyon winds in the area. It burned 619 acres, and more than 900 people in the cities of Uintah and South Weber were evacuated from their homes on September 5. They were allowed to return on September 7. The fire destroyed three homes and damaged two others and a mixed-use property. In total, the fire destroyed or damaged 18 structures. The estimated damage was $849,000, with operational costs of fighting the fire at around $273,000.

[243] RiskFactor.Com, 2024, "Key Factors that Make an Area Vulnerable to Wildfire," Sparks, NV Wildfire Map and Climate Risk Report | Risk Factor

- **July 25, 2021** – The Art Nord Fire near Snowbasin Resort and Pineview Reservoir in Huntsville was caused by a man in his 20s who pulled over to the side of the road and shot at a plastic water bottle with a 9 mm handgun, which sparked the blaze. The fire was started near the 5200 Old Snow Basin Road, and 50 homes were temporarily evacuated as the heavy fuel made of grass and brush burned 46 acres, coming within feet of damaging homes in the area (see Figure 150). Road closures included Old Snowbasin Road to the Art Nord Trailhead, State Highway 39, and the Wheeler Trail system of hiking and bike trails. More than 50 firefighters from the Weber Fire District responded to the fire using four engines and aerial support from four single-engine air tankers, two heavy air tankers, and two helicopters to combat the blaze.[244]



Figure 150: Grass Blackened Near Homes after Gunfire Sparked a Blaze near Snowbasin Resort in Weber County[245]

Probability of Future Occurrences

The potential for Wildfires in Weber County is growing as population growth is spreading into WUI. Over the past 30 years, urban sprawl has encroached upon forested foothill areas and wildland areas. A Wildfire in these areas would threaten life and property. According to the Weber County Emergency Operations Plan, the upper valley of Weber County will average one lightning-caused fire approximately every 80–100 years. However, humans have increased the threat of Wildfire to one every 8–10 years. Fire personnel respond to an average of 50 fires in the wildland areas every year, 80% by humans. Most fires can be contained to one quarter-acre to one acre if they have not traveled into the wildland zones higher on the mountain, which are more difficult to fight due to steep terrain. Therefore, the probability of this hazard occurring in the future is **Highly Likely**.

[244] The Salt Lake Tribune, Conner Sanders, 2021, "Fire Near Snowbasin Caused by Target Shooting Close to Roads and Trails," Fire near Snowbasin caused by target shooting closes roads and trails (sltrib.com)
[245] The Salt Lake Tribune, Conner Sanders, 2021, "Fire Near Snowbasin Caused by Target Shooting Close to Roads and Trails," Fire near Snowbasin caused by target shooting closes roads and trails (sltrib.com)

The Utah Wildfire Risk Explorer categorizes wildfire risk using several key definitions and metrics that assess both the probability of wildfires and their potential impact on various resources. The tool is designed to help communities, planners, and land managers understand wildfire hazards. Here are some of the main definitions of wildfire risk according to the Utah Wildfire Risk Explorer :

- **Wildfire Hazard:** This refers to the physical conditions that can lead to the occurrence and spread of wildfires, such as fuel availability (vegetation), topography, and weather patterns. Areas with dense, dry vegetation, steep slopes, and higher temperatures typically have higher wildfire hazard levels.
- **Wildfire Risk to Communities:** This measures the potential impact of a wildfire on human populations and infrastructure. It combines wildfire likelihood with the vulnerability of buildings and people. Areas with higher concentrations of homes and critical infrastructure in fire-prone zones are at greater risk.
- **Wildfire Likelihood:** Wildfire likelihood is the probability of a wildfire occurring in a given location. It takes into account historical wildfire data, climate conditions, and local vegetation types to estimate how often a wildfire is expected to ignite and spread in the area.
- **Flame Length**: Flame length is a metric used to estimate fire intensity. Longer flame lengths indicate more intense fires that are harder to control and more likely to cause severe damage to structures and the environment. Flame lengths are used to gauge the difficulty of suppression efforts.
- **Fire Effects:** This describes the potential consequences of a wildfire, including the loss or damage to structures, critical infrastructure, ecosystems, or other valued resources. Fire effects help quantify the potential severity of a wildfire if it were to occur.
- **Risk to Resources:** In this context, "resources" refers to natural, cultural, and economic assets, such as forests, watersheds, wildlife habitats, and recreational areas. Wildfire risk to resources assesses the likelihood and potential impact of a fire on these important features.

These definitions help Utah residents and planners make informed decisions about managing wildfire risks, implementing mitigation strategies, and improving community resilience to wildfires.

The Utah Wildfire Risk Explorer defines wildfire risk categories based on potential burn probability and fire intensity:

- **Very Low:** Minimal risk of wildfire occurrence or spread.
- **Low**: Low likelihood of fire with limited fire behavior potential.
- **Moderate:** Fires could occur with moderate fire behavior, requiring attention.
- **High:** High potential for significant fires, presenting a notable risk.
- **Very High**: Very high likelihood of intense fires that could cause severe damage, requiring major mitigation efforts.

The 2024 SHMP illustrates Weber County on the Utah Wildfire Threat Index Map (Figure 151) and the Utah Fire Risk Index Map (Figure 152). Wildfire Threat, or the Fire Threat Index, is closely related to the likelihood of one acre burning. Wildfire Risk indicates the potential for damage or danger from a Wildfire,

and it is quantified using the Wildfire Risk Index. The Utah Wildfire Threat Index Map and the Wildfire Risk Index Map indicate index levels based on the topography of various portions of Weber County.[246]

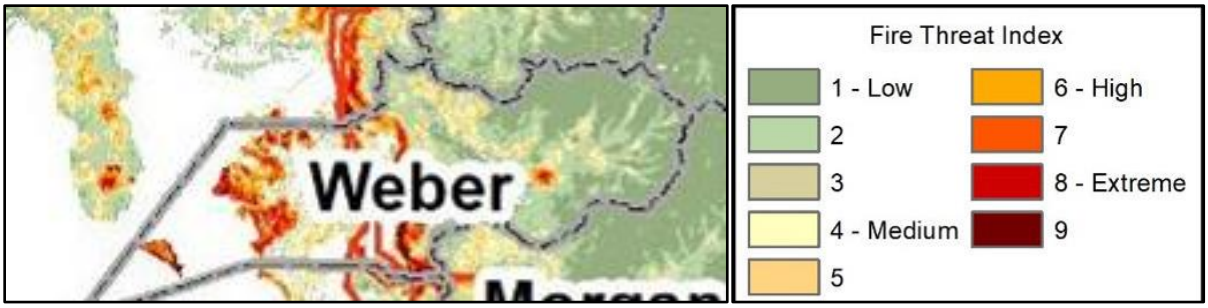


Figure 151: Utah Fire Threat Index Map, Weber County View, and Legend[247]

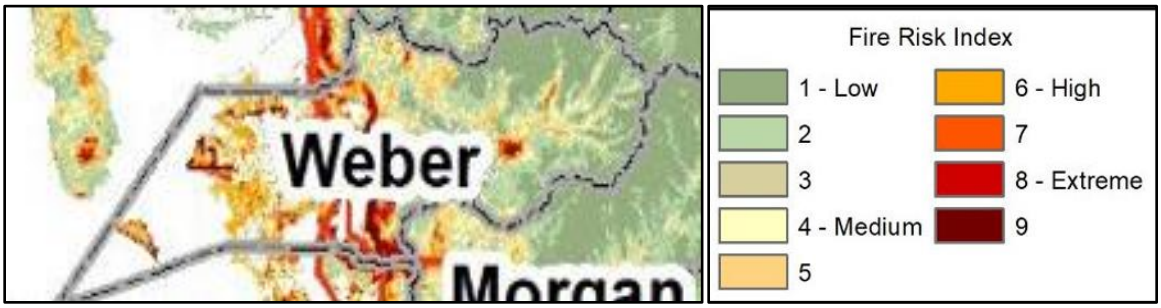


Figure 152: Utah Fire Risk Index Map, Weber County View, and Legend[248]

IMPACT OF CLIMATE CHANGE

The 2024 SHMP projects continued trends in acres burned by Wildfires in the western United States because of warming temperatures and as drought incidents increase in the area. In addition, early onsets of spring, early snowmelts, and reductions in seasonal snowpacks are projected to increase fire risk.[249]

Vulnerability Analysis

Social and economic factors can make it more difficult for some people to prepare for, respond to, and recover from Wildfires. Vulnerable populations may lack access to resources, experience cultural and institutional barriers, have limited mobility, or have medical conditions exacerbated by stress or smoke conditions. For example, people over the age of 65 and people who are disabled are more susceptible to air pollution and particulates associated with Wildfire smoke. Language barriers can make it difficult to follow

[246] 2024 Utah State Hazard Mitigation Plan, "Wildfire Hazards Profile," State of Utah Hazard Mitigation Plan | State of Utah Hazard Mitigation
[247] 2024 Utah State Hazard Mitigation Plan, "Utah Fire Threat Index Map, Weber County View," State of Utah Hazard Mitigation Plan | State of Utah Hazard Mitigation
[248] 2024 Utah State Hazard Mitigation Plan, "Utah Fire Risk Index Map, Weber County View," State of Utah Hazard Mitigation Plan | State of Utah Hazard Mitigation
[249] 2024 Utah State Hazard Mitigation Plan, "Climate Change Considerations," State of Utah Hazard Mitigation Plan | State of Utah Hazard Mitigation

directions during an evacuation or to access support after a disaster. Race and ethnicity are strongly correlated with disparities in health and access to aid and resources. Wildfires disproportionately impact people with low incomes because of factors such as inadequate housing and a diminished ability to evacuate or relocate.

Large numbers of homes/structures make the Wildfire threat in the County most severe in the Uintah Highlands area, east of Weber State University, the mouth of Ogden Canyon, Coldwater Canyon, the upper east area of Harrison Blvd., North Ogden, Pleasant View, Wolf Creek, Powder Mountain, Maple Canyon, South Fork, and Snow Basin.

The Utah Division of Forestry, Fire and State Lands maintains an annually updated list of communities considered "at risk" from Wildfire. The "Overall Score" represents the sum of multiple risk factors analyzed for each community. Examples of risk factors are fire history, local vegetation, and firefighting capabilities. The overall score can range from 0 (No risk) to 12 (Extreme risk). This score allows Utah's fire prevention program officials to assess relative risk and create opportunities for communication with those communities on the list. Table 158 shows the scores for Weber County Jurisdictions.

Table 158: Community at Risk of Wildfire, Weber County[250]

Community Name	Fire Occurrence	Fuel Hazards	Values Protected	Fire Protection Capability	Overall Score
Causey Estates	2	3	1	3	9
Crimson Ridge	2	3	3	2	10
Durfee Creek	2	3	3	3	11
Eden	2	1	3	1	7
Evergreen Estates	2	3	1	3	9
Green Hills	2	3	3	2	10
Harrisville	2	1	2	1	6
Huntsville	2	2	2	2	8
Liberty	2	2	2	2	8
Little Mountain	2	1	2	2	7
Middle Fork	2	3	3	2	10
Moose Mountain	2	3	3	2	10
Nordic Valley	2	3	3	2	10
North Fork	2	3	2	2	9
North Ogden	2	3	3	1	9

[250] Utah Division of Forestry, Fire and State Lands, 2019, Communities at Risk | Utah DNR – FFSL (Forestry, Fire and State Lands)

Community Name	Fire Occurrence	Fuel Hazards	Values Protected	Fire Protection Capability	Overall Score
Ogden	3	3	3	1	10
Ogden Canyon	2	3	3	2	10
Pine View Estates	2	2	2	3	9
Pleasant View	2	2	3	1	8
Pole Patch	2	2	3	2	9
Powder Mountain	2	3	2	3	10
Radford Hills	2	3	3	2	10
Snow Basin	2	3	3	2	10
Sourdough	2	3	1	3	9
South Ogden	3	3	3	1	10
Spring Mountain	2	2	2	2	8
Strongs Peak	2	3	3	2	10
Sunridge Estates	2	3	1	3	9
Uintah	3	3	3	1	10
Wolf Creek	2	3	3	2	10
Wolf Mountain	2	3	3	2	10

The 2024 SHMP provides an analysis based on the Utah Wildfire Risk Assessment Portal, which shows the percentage of various Wildfire threat mapping in each county. The results show the threat based on a percentage of land that falls under certain threat categories, ranging from VVL (Very Very Low) to VVH (Very Very High). Table 159 shows Weber County' Wildfire Risk.[251]

Table 159: Weber County Wildfire Risk Analysis

Very Very Low	Very Low	Low	Low Moderate	Moderate	High Moderate	High	Very High	Very Very High	High Totals
27.2%	20.9%	8.0%	10.1%	10.3%	10.0%	4.6%	3.7%	5.0%	23.3%

[251] 2024 Utah State Hazard Mitigation Plan, "Vulnerability by Jurisdiction", State of Utah Hazard Mitigation Plan | State of Utah Hazard Mitigation

Additional assets across the county are vulnerable from wildfire as well.

Table 160: Wildfire Vulnerability Assessment

Plan Participant Name	Asset Type	Description
Weber County	Structures	All structures in the wildland urban interface (WUI) areas in Weber County would be vulnerable to wildfire. The last significant event was the Uintah Highlands fire, which caused the evacuation of 100+ residents for 3 days. Two homes were lost during the fire, and five were damaged.
	Systems	Power supply, transportation, and water quality can all be affected by wildfire.
	Populations	People in the wildfire's path could be affected. In particular, populations living or traveling through the WUI including tourists would be at risk. Additionally, wildfire smoke can impact populations around the County, particularly those with pre-existing medical conditions that make them more susceptible to harm due to poor air quality.
	Other	Economic activities including tourism, agricultural, and natural resources like migratory wetlands and grazing lands could be affected. Outdoor recreation opportunities could also be affected.
Farr West City	Structures	The city has limited risk to structures, but structures with poor ventilation could be at-risk.
	Systems	None
	Populations	Vulnerable populations, including the elderly and outdoor workers, could experience the effects of wildfire such as wildfire smoke.
	Other	Agricultural fires could occur.
Hooper	Structures	The city has limited risk with potential damage to city structures, city office and public works buildings.
	Systems	None
	Populations	Same as County

Plan Participant Name	Asset Type	Description
	Other	None
Harrisville	Structures	The City has large areas of agricultural land located next to manufacturing, residential developments, and business developments. In the summer months, some of these areas become fire hazards, and if a fire were ignited it could quickly spread to many parts of the city. In addition, Highway 750 West, which has manufacturing, residential, and railways, N Harrisville Rd which has a railway, manufacturing, residential, and business, and 1100 N. which has a school, residential, and a construction business, making these areas high-risk for wildland fire.
	Systems	Highway 89 is a high-risk area for wildland fire, as it runs through the length of the city.
	Populations	Same as County
	Other	None
Huntsville	Structures	None
	Systems	Much of the town is surrounded by the lake, which limits wildfire threat, but also limits transportation routes if an evacuation were needed.
	Populations	Same as County
	Other	Same as County
Marriott-Slaterville	Structures	Minimal exposure of structures to wildfire risk in the city.
	Systems	Same as County
	Populations	Poor air quality from wildfire smoke may affect people in the city.
	Other	None
North Ogden	Structures	Homes in foothills are at risk.

Plan Participant Name	Asset Type	Description
	Systems	Water sources are at risk.
	Populations	Same as County
	Other	None
Ogden	Structures	Residences in the wildland-urban interface (WUI) and critical facilities such as schools and hospitals in WUI are at risk.
	Systems	Electrical systems and communication systems, particularly power lines through wooded areas, are at risk.
	Populations	Individuals with limited mobility are at risk. Residents near forested areas are also at risk.
	Other	Tourism and outdoor recreation industries could be impacted by wildfire. Property and infrastructure damage from wildfire has economic impact.
Pleasant View	Structures	Residential structures are at risk
	Systems	City water tanks, water sources, and roads may be affected by wildfire.
	Populations	Same as County
	Other	None
Riverdale	Structures	Riverbed residences are at risk.
	Systems	None
	Populations	Riverbed residents are at risk.
	Other	None
South Ogden	Structures	Homes near wildland-urban interface.
	Systems	Same as County

Plan Participant Name	Asset Type	Description
	Populations	Elderly residents may have reduced mobility and have difficulty evacuating. May have increased risk of injury or fatality.
	Other	None
Uintah	Structures	Structures, particularly along the eastern and western near the foothills portion of the community, are at-risk from wildfire.
	Systems	Same as County
	Populations	Same as County
	Other	Same as County
Washington Terrace	Structures	Structures are near the wildland urban interface and could be affected by grass fires.
	Systems	Same as County
	Populations	Same as County
	Other	WUI along south and west borders of the city are regulated in regard to open flame and fireworks.
West Haven	Structures	Potential spread to residential developments.
	Systems	Agricultural areas are at risk.
	Populations	Safety of residents is a concern
	Other	None
Pineview Water District	Structures	None
	Systems	Debris and silt could flow into canal or reservoirs following a fire and can disrupt water delivery.
	Populations	Customers affected by any water delivery delays are at risk.

Plan Participant Name	Asset Type	Description
	Other	None
Ogden School District	Structures	Shadow Valley Elementary may be at risk.
	Systems	Same as County
	Populations	Employees and students/residents in the district may be at risk.
	Other	None
Taylor West Weber Water District	Structures	None
	Systems	Power outages associated with a wildfire could disrupt operations.
	Population	Customers affected by any disruption in operations.
	Other	None
Weber Morgan Health Department	Structures	None
	Systems	None
	Population	None
	Other	None
Weber School District	Structures	Some school properties could be at risk.
	Systems	Same as County
	Populations	Employees and students of the district may be at risk.
	Other	None

Plan Participant Name	Asset Type	Description
West Warren-Warren Water Improvement District	Structures	District building could be damaged or destroyed.
	Systems	Pumps and meters could be melted. Accessibility to fire hydrants could be limited. Sufficient water flow to extinguish fires is a concern.
	Populations	All customers could be affected if water service was disrupted.
	Other	None
Central Weber Sewer Improvement District	Structure	Wastewater collection and treatment structures could be damaged.
	Systems	Structural damage could disrupt operations to customers.
	Populations	Disruption of service to district customers.
	Other	None
North View Fire District	Structures	Residential structures, city water tanks are at risk.
	Systems	Roads, water lines, and other infrastructure are at risk.
	Populations	Residents in service area and district employees could be affected.
	Other	None
Weber Fire District	Structures	Residences and other structures in the WUI are a primary concern.
	Systems	Transportation routes and other infrastructure may be disrupted by wildfire.

Plan Participant Name	Asset Type	Description
	Populations	Residents in the WUI are at risk. First responders responding to wildfires.
	Other	None

Impacts

Weber County's expected annual loss (EAL) value for Wildfire is $3.7 million with a risk score of 95.3 and a rating of Relatively Moderate compared with the rest of the United States (Figure 153).



Figure 153: Map, Legend and Expected Annual Loss from Wildfires, Weber County[252]

Diminished air quality is an environmental impact that can result from a Wildfire event and pose a potential health risk. Smoke plumes from Wildfires can contain potentially inhalable carcinogenic matter. Particles of soot and ash that are too small for the respiratory system to filter can cause immediate and possibly long-term health effects. The elderly or those with compromised respiratory systems may be more vulnerable to the effects of diminished air quality after a Wildfire event.

In addition, fire protection in WUI areas is difficult because the tactics used for Wildfire suppression cannot be used for structure protection and suppression. The energy emitted from a Wildfire is very dangerous to firefighters and homeowners and makes protection of homes almost impossible. One-third of all firefighter deaths occur fighting Wildfires. Many believe that WUI areas significantly increase the risks to firefighters. Legally, federal wildland protection agencies seldom have the responsibility to protect structures. The legal responsibility for protecting structures in non-federal wildlands varies widely among state forestry agencies.

[252] FEMA, National Risk Index, "Weber County Expected Annual Loss Wildfire Risk Score, Map and Legend." Map | National Risk Index (fema.gov)

Table 161 provides the population statistics of vulnerable populations living in Weber County. Figure 154 shows the areas with vulnerable populations in Weber County.

Table 161: Weber County Vulnerable Populations at Risk of Wildfire[253]

Indicator	Number	Percent
Families in poverty	3,284 ±433	5% ±0.7%
People with disabilities	29,903 ±1,362	11.5% ±0.6%
People over 65 years	31,310 ±1,299	11.9% ±0.5%
People under 5 years	18,516 ±1,111	7% ±0.4%
People of color	65,731 ±6,550	25% ±2.5%
Black	2,768 ±481	1.1% ±0.2%
Native American	1,827 ±423	0.7% ±0.2%
Hispanic	49,388 ±2,864	18.8% ±1.1%
Difficulty with English	4,395 ±809	1.8% ±0.3%
Households with no car	4,056 ±430	4.5% ±0.5%
Mobile homes	2,824 ±423	3.1% ±0.6%

[253] Wildfire Risk, 2024, "Weber County Vulnerable Populations at risk from Wildland Fire," Wildfire Risk to Communities

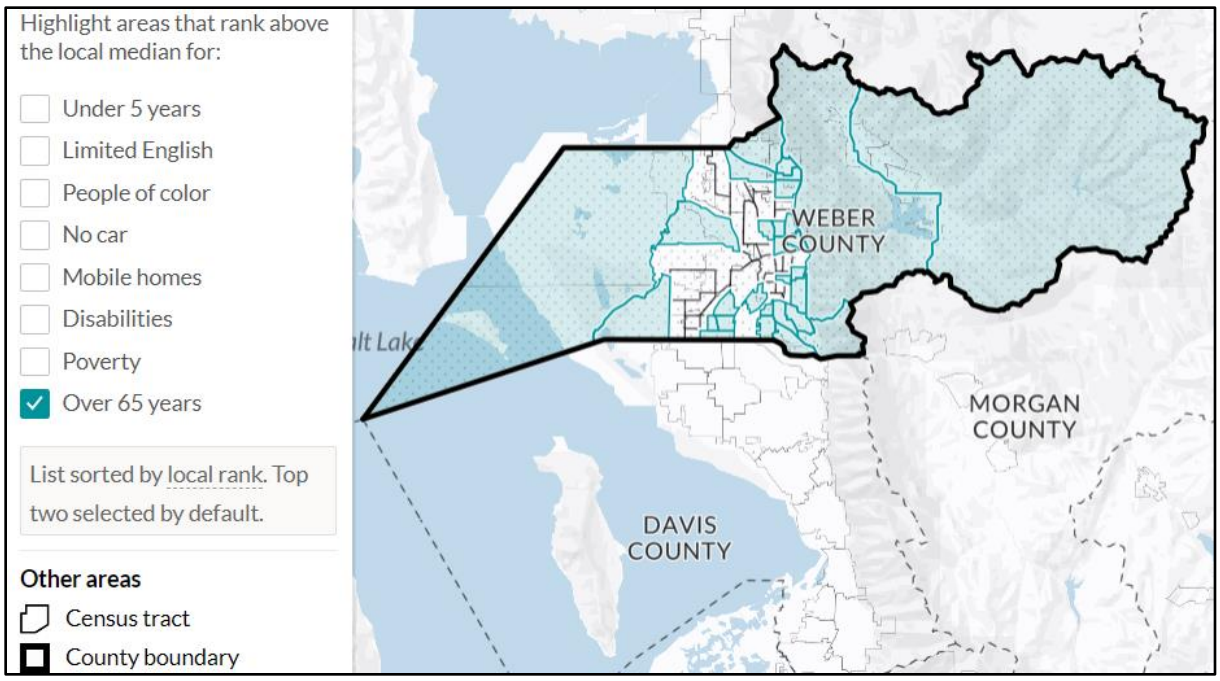


Figure 154: Wildfire Risk Vulnerable Populations Map, Weber County by Over 65 years[254]

Lifelines are the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. Community lifelines are essential for the well-being of any community. They provide support and assistance to individuals who require help, especially during times of crisis. Wildfires can cause substantial damage to communications, electrical, and water delivery systems and transportation infrastructure.

For example, damage to communications infrastructure can interrupt Internet, phone, television, and radio service prior to or after a disaster, which will limit emergency responders' ability to communicate effectively and impede their efforts to send evacuation notifications to the public if cell phone and radio relay towers are damaged in Wildfire incidents. Energy infrastructure damage, such as downed power lines, can impact the ability to provide medical services and the use of medical equipment to homes and hospitals if backup generators are not prepositioned to provide power during outages. Downed powerlines can also impede evacuations and first responders' ability to access certain locations in an emergency.

Wildfires can impact water delivery systems when increased sediment reduces storage capacity in Utah dams and reservoirs. Transportation infrastructure can be impacted during emergency responses or disasters, as Wildfires can require major bridge and road closures and limited detours that can impede first responders, evacuations, and the transportation and distribution of goods and supplies. Also, Wildfires may

[254] Wildfire Risk, 2024, "Wildfire Risk Vulnerable Populations Map, Weber County by Over 65 years", Wildfire Risk to Communities

impact railroads' ability to move commerce and can have devastating consequences for companies that depend on the transportation of goods by rail.[255]

Table 162: Impacts from Wildfire by Jurisdiction

Plan Participant Name	Impacts
Weber County	Structures in the WUI could be damaged or destroyed. Systems, including power, transportation, and water systems could be disrupted or destroyed. People exposed both directly to the wildfire and to wildfire smoke could be injured or killed. People with pre-existing conditions would be the most likely to be impacted by wildfire smoke. Economic activities, recreation opportunities, and the environmental could also experience losses.
Farr West City	Farr West could experience the impacts of wildfire smoke and agricultural fires including illness, disruptions to outdoor work, and crop losses which could have economic impacts.
City of Harrisville	The City has large areas of agricultural land located next to manufacturing, residential developments, and business developments. In the summer months, some of these areas become fire hazards, and if a fire were ignited it could quickly spread to many parts of the city. Highway 89 is a high-risk area for wildland fire, as it runs through the length of the city. In addition, Highway 750 West, which has manufacturing, residential, and railways, N Harrisville Rd which has a railway, manufacturing, residential, and business, and 1100 N. which has a school, residential, and a construction business, making these areas high-risk for wildland fire. Structures and infrastructure, particularly in these areas, could be damaged or destroyed. People may be injured or killed. Economic losses could occur.
City of Hooper	The city has limited risk with potential damage to city structures, city office and public works buildings. People may be injured or killed.
City of Huntsville	Huntsville is low-risk due to the lake around most of the town, but a spreading fire in the town could cause evacuation issues. People may be injured or killed.
City of Marriott-Slaterville	Infrastructure, including power systems, water systems, and transportation routes, may be damaged or destroyed. People may be harmed by wildfire smoke and poor air quality.

[255] 2024 Utah State Hazard Mitigation Plan, "Wildfire Hazards Profile," State of Utah Hazard Mitigation Plan | State of Utah Hazard Mitigation

Plan Participant Name	Impacts
City of North Ogden	Structures, particular near the foothills, could be damaged or destroyed. Infrastructure, particular water supply, could be impacted by wildfire. People in the wildfire's path, likely in the WUI, could be injured or killed. Wildfire smoke could also affect the population, particularly vulnerable populations with pre-existing medical conditions.
City of Ogden	Wildland and urban fires pose significant threats to Ogden. The Community Wildfire Protection Plans (CWPPs) provide essential guidelines for reducing fire risks, especially in areas where urban development interfaces with wildland regions. There is a high probability of loss of life and structures along the wildland-urban interface. There may not be sufficient water supply to effectively fight a major wildfire. Infrastructure, including power and communications systems, may be damaged or destroyed. Residents may be impacted by disruptions to services. Industries such as tourism would be impacted. Economic losses would be incurred.
City of Pleasant View	Residential structures may be damaged or destroyed. City water tanks and water sources may be damaged or destroyed. Systems, including water and transportation systems, may be damaged or destroyed. People may be injured or killed or could be impacted by disruptions to systems.
City of Riverdale	Residential structures near the riverbed could be damaged or destroyed by wildfire. People could be injured or killed.
City of South Ogden	Homes near wildland-urban interfaces could be damaged or destroyed. Systems, including power, water, and transportation, could be damaged or destroyed. People may be injured or killed. Elderly residents may struggle with evacuation due to mobility issues, leading to an increased risk of injury or fatality.
City of Uintah	Structures in the wildland urban interface (WUI) particularly along the eastern and western near the foothills portions of the community could be damaged or destroyed. Infrastructure, such as roads, power, and water systems, could be disrupted, damaged, or destroyed. People, particularly in the high-risk areas, could be injured or killed. The elderly, those without easy access to transportation, and people with pre-existing medical conditions may experience the worse impacts. Outdoor recreation and economic activities would be negatively impacted.
City of Washington Terrace	The city has a wildland fire interface where the possibility of grass fires has the potential to reach structures. The interface extends along the city's south and

Plan Participant Name	Impacts
	west borders and is regulated regarding open flame and fireworks. Structures in this area could be damaged or destroyed. People may be injured or killed.
City of West Haven	The city concern is mainly agriculture and the spread to nearby residential developments. Residential structures could be damaged or destroyed. People may be injured or killed. Crops may be lost resulting in economic damage.
Pineview Water System	Debris and silt that could flow into canals or reservoirs after the fire is out during heavy rains or runoffs that can affect water systems. Disruption of services could impact water system customers.
Taylor West Weber Water District	Power outages related to a fire could disrupt operations. Disruption of services could impact water district customers.
Ogden School District	Shadow Valley Elementary may be damaged or destroyed. Shadow Valley Elementary school employees, students and residents are within the boundary area and could be injured or killed. Relevant systems including water, power, and transportation, could be disrupted, damaged, or destroyed. School activities may be delayed or cancelled at Shadow Valley Elementary.
Weber Morgan Health Department	Facilities not located in the wildfire urban interface. Health impacts may be experienced across the county due to wildfire and wildfire smoke.
Weber School District	School properties could be damaged or destroyed. Necessary systems, including transportation routes, water systems, and power, could be damaged or destroyed. Employees and students of the district may be injured or killed. School activities may be delayed or cancelled due to wildfire and wildfire smoke.
West Warren-Warren Water Improvement District	The district building could be destroyed, water pumps and meters would be melted, and accessibility to fire hydrants and sufficient water flow might be limited. Customers may be impacted by damage to district services.
North View Fire District	The district contains residential structures, city water tanks, and roads that could be damaged or destroyed by wildfires. District staff may be called upon to respond to an event. People in the district's service area could be injured or killed,
Weber Fire District	Residential structures, transportation routes, and other types of infrastructure may be injured or destroyed, particularly in the WUI. First responders may be

Plan Participant Name	Impacts
	injured or killed while responding to an event. Other residents may be injured or killed.
Central Weber Sewer Improvement District	Wastewater collection and treatment structures could be damaged. Operations of wastewater collection and treatment facilities could be disrupted. Customers could be impacted by service disruptions.

In Weber County, 63,966 properties (or 60%) have a moderate risk of being affected by Wildfire over the next 30 years. Of those, 48,971 are residential structures, 2,019 are commercial structures, 298 are infrastructure facilities, and 98 are social facilities.[256]

In addition to damaging properties, Wildfire can also cut off access to utilities and emergency services, impact evacuation routes, and impact the economic well-being of an area. Overall, Weber County has a Moderate risk of Wildfire over the next 30 years. This is based on the level of risk the properties face rather than the proportion of properties with risk.[257]

Table 163 estimates infrastructure vulnerable to Wildfire in Weber County. It lists the numbers of units or total length of infrastructure vulnerable and the estimated replacement costs as provided by HAZUS-MH lost estimation software.

Table 163: Transportation Infrastructure Vulnerable to Wildfire, Weber County

Item	Length (Miles) or Number of Units	Replacement Cost
Highways	21.5 miles	$34,614,000
Highway Bridges	9 bridges	$19,322,000
Railway Segments	15.3 miles	$104,393,000
Railway Bridges	3 bridges	$13,275,000
Total Estimated Replacement Cost		$171,604,000

[256] RiskFactor.com, 2024, "Moderate Fire Factor", https://riskfactor.com/county/weber-county-ut/49057_fsid/fire
[257] Ibid.

Table 164 through Table 167 show high and very high wildfire potential affecting plan participants and the structures within their jurisdictions.

Table 164: Areas Affected by High or Very High Wildfire Hazard Potential by City

City	Area Affected (Acres)	Population Affected	Structures in Area Affected	Exposure in Area Affected
Farr West	280	6,408	2,315	2,291,242,000
Harrisville	220	5,748	2,239	1,159,668,000
Hooper	2,810	8,623	3,049	1,781,036,000
Huntsville	40	487	332	273,434,000
Marriott-Slaterville	270	2,033	957	836,276,000
North Ogden	1,130	16,975	6,484	3,541,328,000
Ogden	2,060	43,164	15,988	17,247,955,000
Pleasant View	600	9,718	3,279	2,704,972,000
Riverdale	170	4,520	1,757	879,394,000
South Ogden	220	8,960	3,625	2,216,846,000
Uintah	60	1,351	522	327,765,000
Washington Terrace	40	2,994	1,125	1,016,454,000
West Haven	620	13,405	4,986	3,397,051,000
Total	9,610	154,283	57,412	$42,870,626,000

Table 165: Areas Affected by High or Very High Wildfire Hazard Potential by School District

School District	Area Affected (Acres)	Population Affected	Structures in Area Affected	Exposure in Area Affected
Ogden	2,050	43,139	15,977	17,230,254,000
Weber	196,940	125,724	51,044	34,111,763,000
Total	198,990	168,863	67,021	$51,342,017,000

Table 166: Areas Affected by High or Very High Wildfire Hazard Potential by Water District

Water District	Area Affected (Acres)	Population Affected	Structures in Area Affected	Exposure in Area Affected
Bona Vista	640	7,849	3,500	2,814,152,000

Water District	Area Affected (Acres)	Population Affected	Structures in Area Affected	Exposure in Area Affected
Pineview – South Ogden	380	16,129	5,794	2,904,455,000
Pineview – Weber/Box Elder	880	30,155	11,042	6,277,365,000
Taylor West Weber	540	7,451	3,046	1,887,401,000
Warren/West Warren	360	672	386	220,756,000
Overlap: Bona Vista & Pineview – Weber/Box Elder	810	19,788	7,587	6,265,795,000
Total	4,260	102,658	38,302	$24,025,714,000

Table 167: Areas Affected by High or Very High Wildfire Hazard Potential by Sewer District

Sewer District	Area Affected (Acres)	Population Affected	Structure in Area Affected	Exposure in Area Affected
Central Weber	5,530	109,424	41,361	35,593,924,000

Figure 155 through Figure 159 show a jurisdiction-level wildfire hazard potential for plan participants.

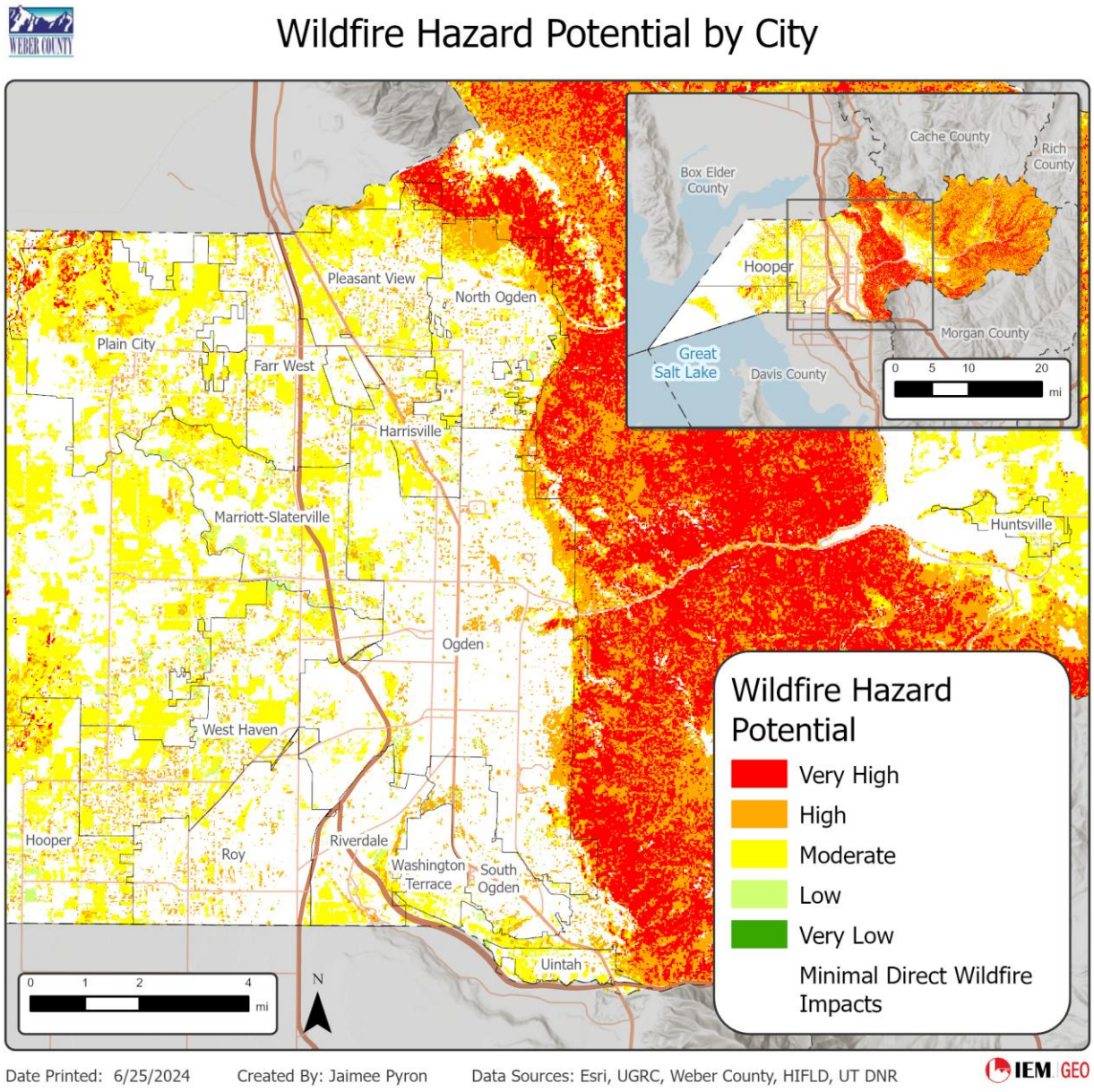


Figure 155: City Wildfire Hazard Potential

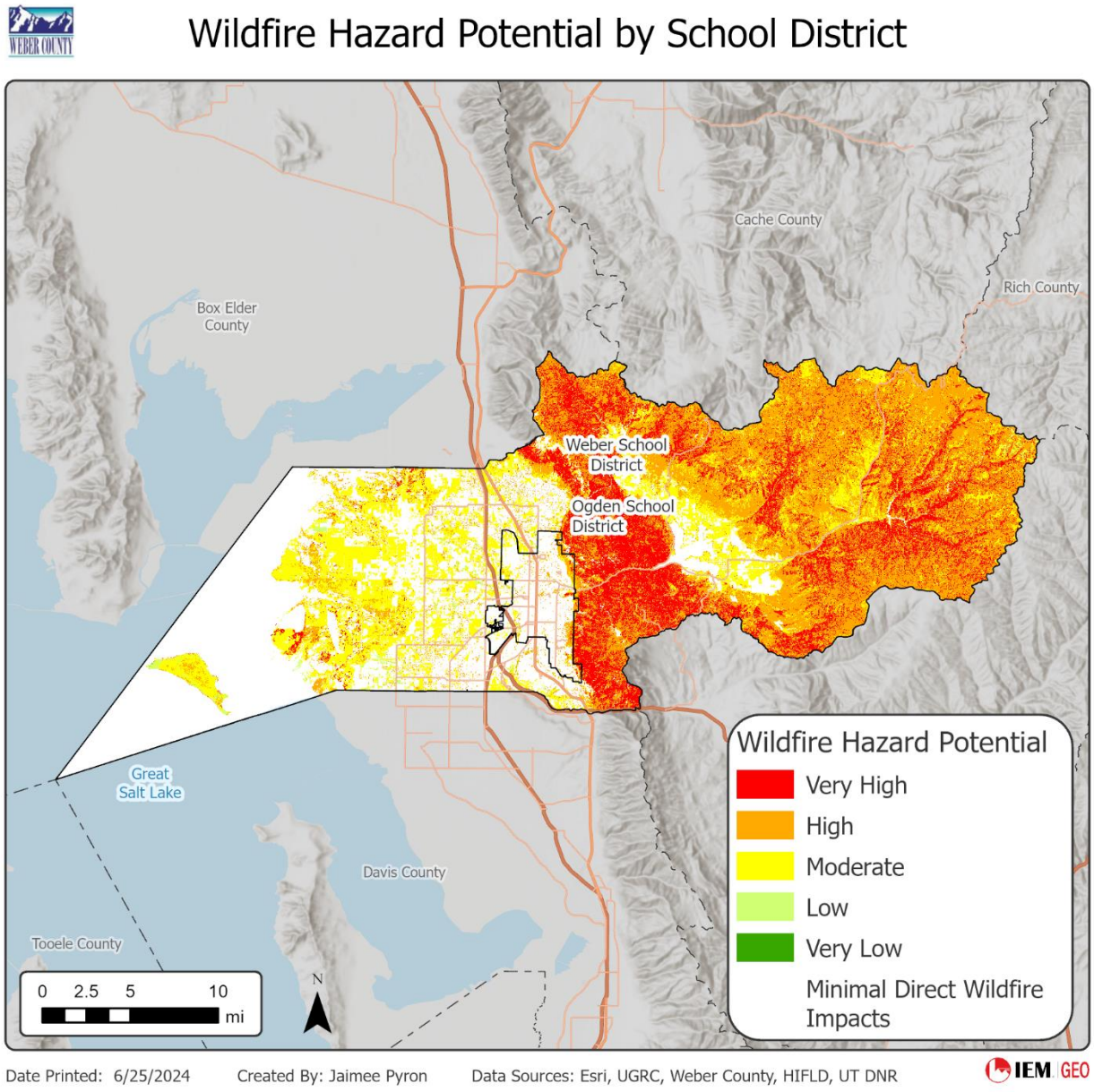


Figure 156: School District Wildfire Hazard Potential

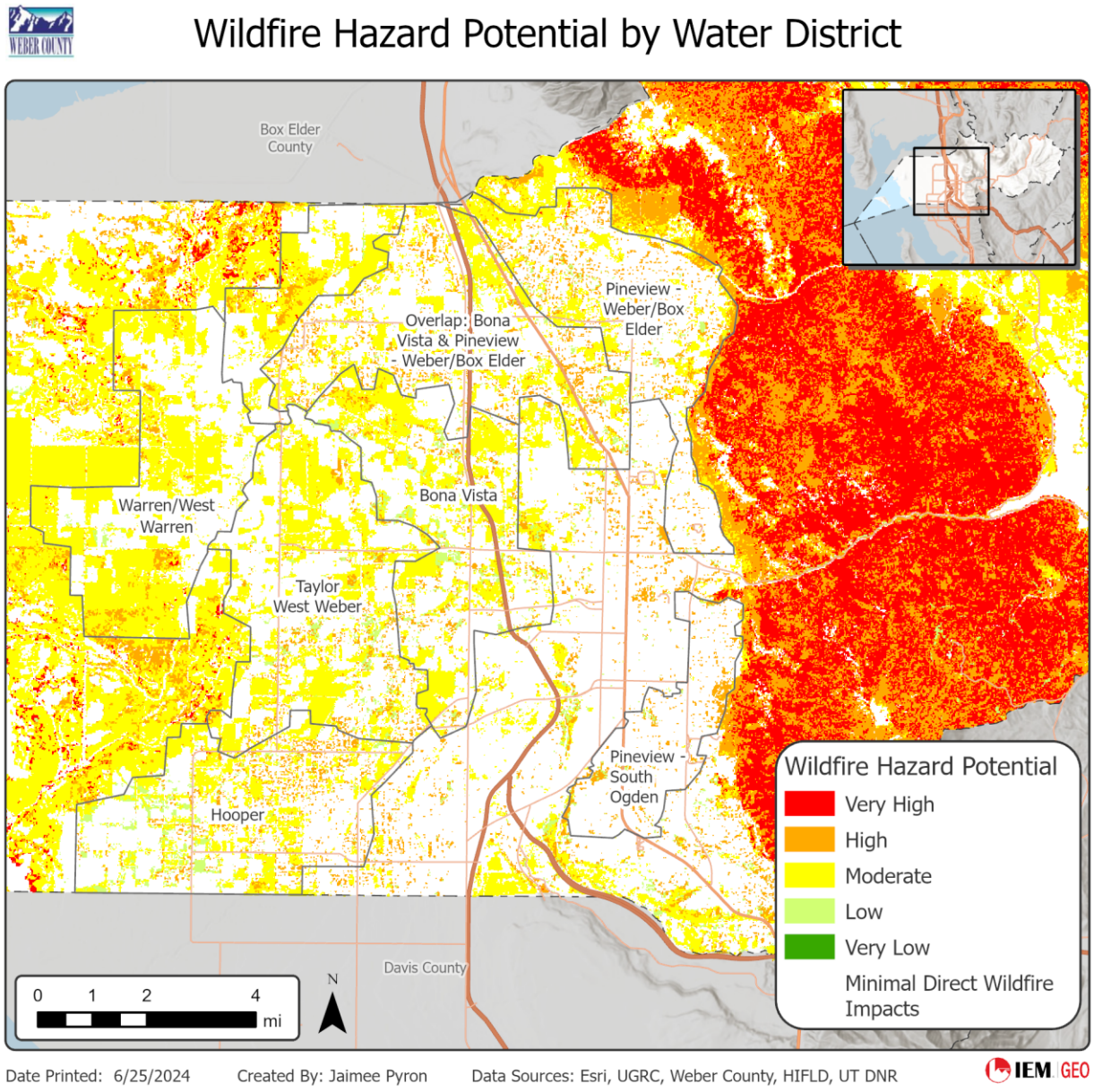


Figure 157: Water District Wildfire Hazard Potential

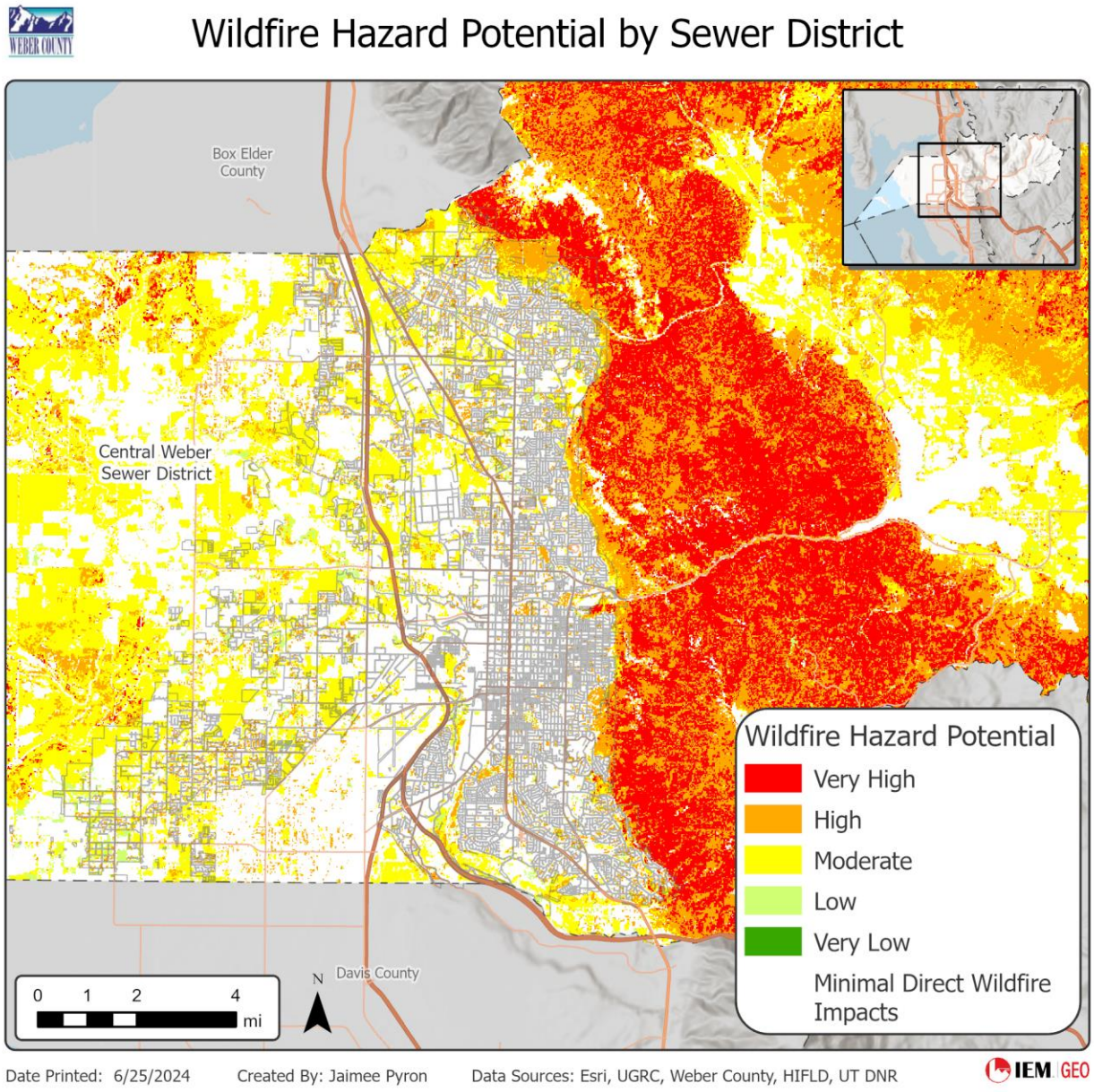


Figure 158: Sewer District Wildfire Hazard Potential

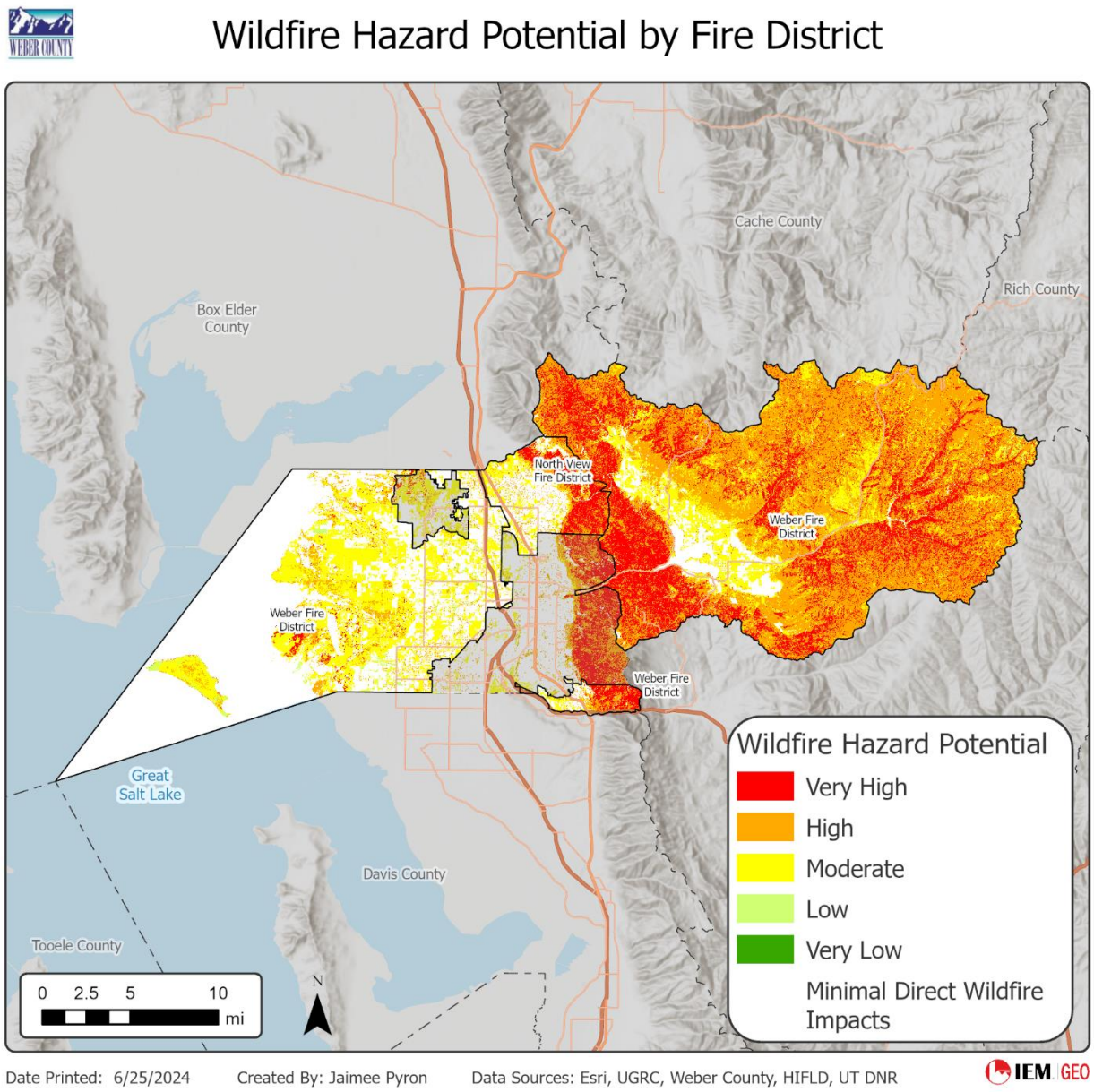


Figure 159: Fire District Wildfire Hazard Potential

Changes in Development

Overall, due to increased developed and changing conditions, the vulnerability to wildfire has increased in the planning area, except in South Ogden. Certain jurisdiction-specific considerations are as follows:

Table 168: Wildfire Changes in Development Summary

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Weber County	Increased	Continued growth and building associated with increasing population have moved rural and suburban communities into areas prone to wildfire across Weber County.
Farr West	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from wildfires.
Harrisville	Increased	Due to an increase in development, the city has less open area that could pose a wildfire risk. The city has been working with the local fire district and the state on a new Community Wildfire Protection Plan to reduce any extreme risks. When the Ben Lomond residential and mix-use development is completed (previously a golf course), the city will see a decrease in wildland fire risk, although there will still be moderate and low-risk areas, however the City's mitigation efforts should limit the level of vulnerability.
Hooper	Increased	If a field or structure catches fire, the city is at an increased risk, which could result in the destruction of more homes.
Huntsville	Stayed the Same	Since the previous plan, there has been no significant risk of wildfire due to changes in development.
Marriott-Slaterville	Increased	The city is at an increased risk due to higher density housing.
North Ogden	Increased	The city is at an increased risk due to greater development higher on the mountain.
Ogden	Increased	The city has increased risk due to more development in urban interface areas.

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
		Increased development in WUI areas heightens the risk of wildfires impacting homes and infrastructure. Implementing fire-resistant building materials and creating defensible spaces are critical mitigation measures. The population growth and expanding urban areas near wildland areas increases the number of people and amount of property at risk.
Pleasant View	Increased	Development continues up the hillside, increasing fire response times.
Riverdale	Stayed the Same	Since the previous plan, there has been no significant risk of wildfire due to changes in development.
South Ogden	Decreased	The city's risk has decreased due to mitigation steps implemented to make South Ogden more resilient to wildfires.
Uintah	Stayed the Same	Since the previous plan, there has been no significant risk of wildfire due to changes in development.
Washington Terrace	Stayed the Same	Since the previous plan, there has been no significant risk of wildfire due to changes in development.
West Haven	Stayed the Same	Since the previous plan, there has been no significant risk of wildfire due to changes in development.
Ogden School District	Stayed the Same	Since the previous plan, there has been no significant risk of wildfire due to changes in development.
Pineview Water Systems	Stayed the Same	Since the previous plan, there has been no significant risk of wildfire due to changes in development.

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Roy Water Conservancy District	Stayed the Same	Since the previous plan, there has been no significant risk of wildfire due to changes in development.
Taylor West Weber Water District	Stayed the Same	Since the previous plan, there has been no significant risk of wildfire due to changes in development.
Weber-Morgan Health Department	Stayed the Same	Not located in the wildfire urban interface.
Weber School District	Stayed the Same	Since the previous plan, there has been no significant risk of wildfire due to changes in development.
West Warren-Warren WID	Stayed the Same	Since the previous plan, there has been no significant risk of wildfire due to changes in development.
Central Weber Sewer Improvement District	Stayed the Same	Since the previous plan, there has been no significant risk of wildfire due to changes in development.
Weber Fire District	Decreased	**The** district continues to improve its response capabilities. It also has a robust mitigation program targeting vulnerable communities for cleanup and education. Six personnel are dedicated to this, and the county fire warden leads the efforts. The district has received cleanup grants to aid in these efforts. Annually, about 5,000 acres of land in Weber County are cleaned up.
North View Fire District	Increased	Development continues up the hillside, increasing fire response times.

The Weber County Fire Warden helps lead the County's wildfire mitigation program, which teaches communities about defensible space. Homeowners are encouraged to remove fuels from their property to reduce the likelihood of a catastrophic fire and to reduce the probability of damage to their homes by using landscaping as defensible space. These efforts to educate the community about defensible space have

decreased the vulnerability of those communities to Wildfire hazards.[258] Figure 160 illustrates mitigation measures to help homeowners implement defensible space to protect their homes in the WUI, thereby decreasing vulnerability to Wildfire risk.

PUBLIC SURVEY INPUT

Multiple survey participants reported concern about wildfires. Several participants were concerned about deadfall and foliage overgrowth causing fires. The public stated that more public education and outreach are needed to inform the community about hazards and prevention.

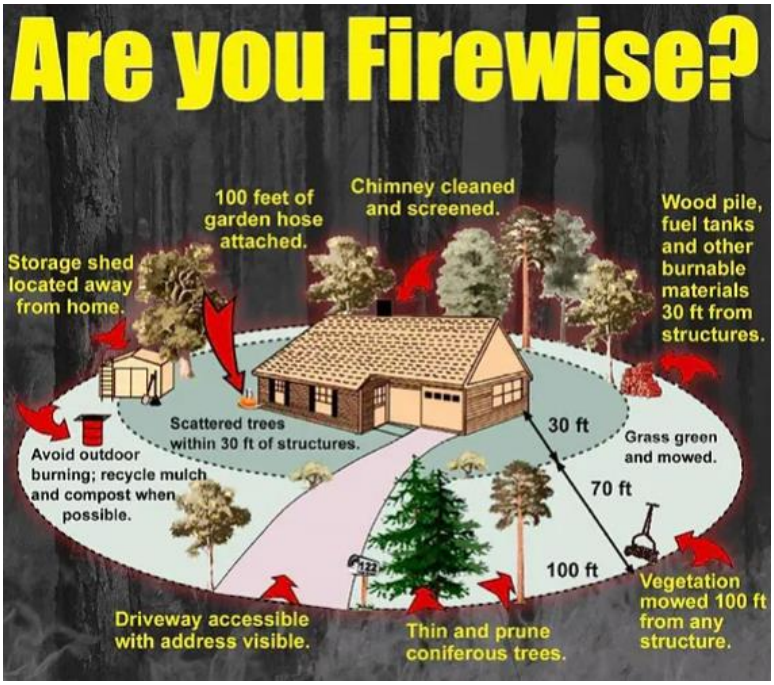


Figure 160: Weber Fire District Wildland Mitigation-Defensible Space Awareness[259]

SECONDARY HAZARDS

While smaller wildfire events have occurred since the last plan update without loss of life or property the impacts of wildfire to grazing lands, recreational facilities, agricultural lands and migratory wetlands have occurred across the County. Secondary impacts to power supplies, transportation, and water quality have also been felt, as wells as an increase in the potential for landslides, debris flows, erosion, traffic accidents, and air pollution.

[258] ABC4.com, Kade Garner, July 26, 2021, What is 'defensible space' and how did it save homes from the Art Nord Fire? | ABC4 Utah
[259] Weber Fire District Wildland Division, 2024, Wildland Mitigation | Weberfd (weberfiredistrict.com)

Winter Storms

Winter storms can be severe events that bring snow, ice, and freezing rain, causing significant problems for residents in affected areas. These storms are often characterized by freezing or frozen precipitation, such as sleet, snow, freezing rain, and strong winds. High winds and temperatures below freezing can cause low wind chills.

Winter storms in Weber County can originate from various sources. Most commonly, they come from the northwest and west, bringing cold air and moisture from the Pacific Ocean. Storms can also come from the south, bringing warmer air and moisture from the Gulf of Mexico. The combination of these weather systems can create intense winter storms that bring heavy snowfall, freezing rain, and strong winds.

The number of extremely cold days per year in Weber County can vary depending on the specific location in the county. However, the county generally experiences 10–20 days per year with temperatures below freezing.

The duration of ice hazards, extreme cold, and snow in Weber County can vary, depending on specific weather conditions. Generally, winter weather conditions can last from a few days to several weeks. During ice and snow accumulation, response times increase until public works road crews can make major roads passable.

Table 169 outlines the different categories of alerts, such as watches, warnings, and advisories, issued for winter storms in the Weber County planning area, including all participating jurisdictions.

Table 169: Winter Weather Alerts[260]

Type of Watch, Advisory, or Warning	Description
Winter Storm Watch	This means hazardous winter weather is possible—but not certain—in the next 48 hours. It includes 5+" of snow/sleet in 12 hours or 7+" in 24 hours, ice accumulation that damages trees and power lines, or life-threatening accumulation of snow or ice, with wind.
Blizzard Warning	This means: • Snow/blowing snow reduces visibility to 1/4 mile or less for 3+ hours. • Sustained winds of 35+ mph or frequent gusts. There is no specific temperature requirement.
Winter Storm Warning	This is issued for hazardous winter weather. It includes: 1) 5+" of snow/sleet in 12 hrs. or 7+" in 24 hrs. 2) Enough ice that can damage trees and power lines. 3) Accumulation of snow or ice, with high winds causing danger.
Ice Storm Warning	This means an accumulation of ¼ inch or more of ice.

[260] National Weather Service, "Watch/Warning/Advisory Definitions." https://www.weather.gov/lwx/WarningsDefined

Type of Watch, Advisory, or Warning	Description
Winter Weather Advisory	This is issued when freezing rain is possible or when the expected amount of snow (2–4"), along with sleet and freezing rain, can cause significant inconvenience but not serious enough to warrant a warning.
Freeze Watch	This warns of possible freezing temperatures that can damage crops. It is issued in autumn until the end of the growing season and in the spring, when new plants and crops are at risk of damage.
Freeze Warning	This is issued for significant and widespread freezing temperatures. It is issued in autumn until the end of the growing season and in spring, when new plants and crops are at risk of damage.
Frost Advisory	This is issued when the temperature drops to 33–36°F on clear, calm nights during the growing season. It is issued in autumn until the first widespread freeze. In warm autumns, the growing season may last longer. It is also issued in spring to protect new plants from damage.
Wind Chill Advisory	This is issued when seasonably cold wind chill values are present but not when extremely cold values are expected or occurring.
Wind Chill Warning	This is issued when dangerously cold wind chill values are expected or occurring.

Table 170 provides information on the types of winter precipitation.

Table 170: Types of Winter Precipitation[261]

Type of Winter Precipitation	Description
Snow Flurries	Light snow falls for short durations. No accumulation or only a light dusting is expected.
Snow Showers	Snow falls at varying intensities for brief periods. Some accumulation is possible.
Snow Squalls	Brief, intense snow showers accompanied by strong, gusty winds. Accumulation may be significant. Snow squalls are best known in the Great Lakes region.
Blowing Snow	Wind-driven snow reduces visibility and causes significant drifting. Blowing snow may be snow falling and/or loose snow on the ground, picked up by the wind.
Blizzard	Winds over 35 mph with snow and blowing snow, reducing visibility to 1/4 mile or less for at least 3 hours.
Ice Storm	A storm that results in the accumulation of at least .25" of ice on exposed surfaces. It creates hazardous driving and walking conditions. Tree branches and powerlines can easily snap under the weight of the ice.

[261] National Weather Service, "Severe Weather 101." https://www.nssl.noaa.gov/education/svrwx101/winter/types/

Type of Winter Precipitation	Description
Sleet	Occurs when snowflakes partially melt when they fall through a shallow layer of warm air. These slushy drops refreeze as they fall through a deep layer of freezing air and reach the ground as frozen raindrops that bounce on impact.
Freezing Rain/ Drizzle	Occurs when snowflakes descend into a warmer layer of air and melt completely. When these liquid water drops fall through another thin layer of freezing air just above the surface, they don't have enough time to refreeze before reaching the ground. Because they are "supercooled," they instantly refreeze upon contact with anything at or below 32°F, creating a glaze of ice on the ground, trees, power lines, or other objects. An ice storm is a significant accumulation of freezing rain that lasts several hours or more.
Lake Effect Snow	Localized, convective snow bands that occur in the lee of lakes when relatively cold air flows over warm water.

Location

Winter storm events can occur unexpectedly and are not confined to specific geographic boundaries. As a result, it is essential to understand that all existing and future buildings, facilities, and populations in the Weber County planning area are considered exposed to a winter storm hazard and could be impacted. Such hazards include heavy snowfall, freezing rain, and strong winds, which can cause significant damage to infrastructure, disrupt transportation, and pose a danger to individuals and animals. Therefore, Weber County planning area communities must take appropriate measures to prepare for and respond to potential winter storm events. This includes developing emergency plans, ensuring that buildings and facilities are designed to withstand potential impacts, and providing adequate resources and support to those affected by such events. As shown in Figure 161, all of Weber County has a relatively high risk of winter weather. However, northeastern Weber County receives more snowfalls than other areas.

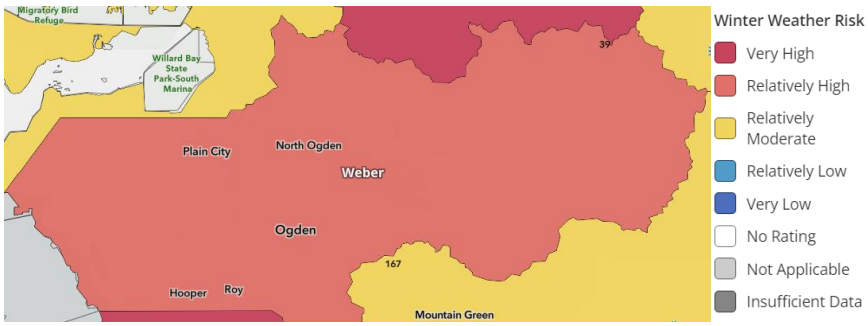


Figure 161: Risk of Winter Weather in Weber County[262]

Figure 162 shows the locations of hail events in Weber County from 1955 to 2022.

[262] FEMA, National Risk Index." https://hazards.fema.gov/nri/map#

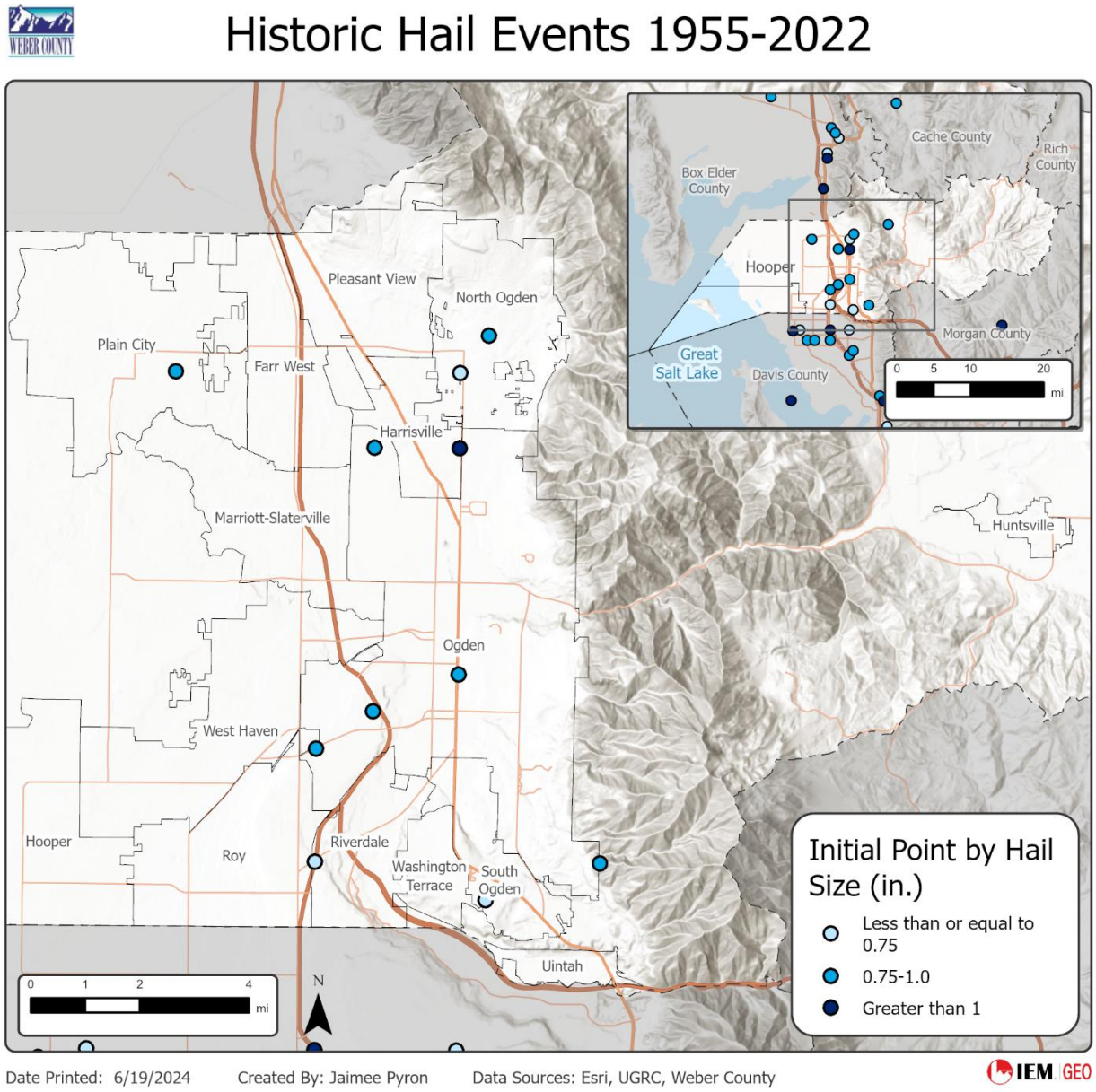


Figure 162: Hail Events in Weber County, 1955–2022

Magnitude/Extent

The severity of a winter storm is measured by its intensity, which is determined by the temperature and amount of snowfall, as presented in Table 171. This chart is not applicable when temperatures are above 50°F or when winds are calm. The National Weather Service developed this index.

Table 171: Magnitude of Severe Winter Storms

Intensity	Temperature	Description
Mild	40–50°F	Winds less than 10 mph and freezing rain or light snow falling for short durations with little or no accumulations
Moderate	30–40°F	Winds 10–15 mph with sleet and/or snow up to 4"
Significant	25–30°F	Intense snow showers accompanied by strong gusty winds 15–20 mph with significant accumulation
Extreme	20–25°F	Wind-driven snow that reduces visibility, heavy winds (20–30 mph), and sleet or ice up to 5 millimeters in diameter
Severe	< 20°F	Winds of 35 mph or more and snow and sleet greater than 4"

Wind chill temperature measures how cold the wind makes the actual air temperature feel to the human body. Because wind can accelerate heat loss from the body, 30°F with strong winds might feel as cold as 0°F with no wind. Figure 163 is the wind chill chart developed by the National Weather Service.

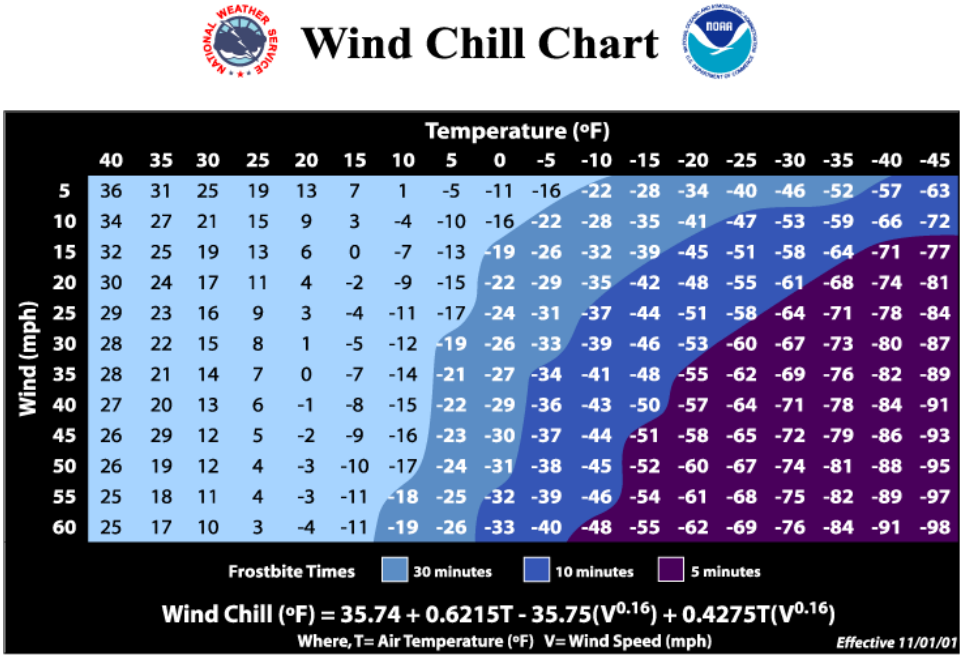


Figure 163: National Weather Service Wind Chill Chart[263]

The Winter Storm Severity Index (WSSI)—also developed by the National Weather Service—looks at how much a storm can disrupt a community. It assesses different factors related to snowfall, such as the amount of snow, its density (heavy and wet or light and fluffy), and its speed of accumulation. It also considers the effect of wind, which can cause blowing snow or ground blizzards, the amount of ice accumulation expected, and the likelihood of a rapid drop in temperature during or after the snowfall. These factors

[263] National Weather Service, "Wind Chill Chart." https://www.weather.gov/safety/cold-wind-chill-chart

contribute to potential damage to trees and power lines. The WSSI, shown in Table 172, also considers population density and geographic location, as these factors can exacerbate a storm's impact.

Table 172: Index of Winter Storm Severity[264]

Descriptor	General Descriptors of Expected Storm Severity and Impacts
None	There is no snow or ice forecast and no potential Ground blizzard conditions.
Limited	Small accumulations of snow or ice are forecast. Minimal impacts, if any, are expected. In general, society goes about its regular routine.
Minor	Roughly equates to NWS Advisory Level criteria. Minor disruptions, primarily to those who were not prepared. None to minimal recovery time is needed.
Moderate	Roughly equates to NWS Warning Level criteria. Definite impacts on those with little preparation. Perhaps a day or two of recovery time for snow and/or ice accumulation events.
Major	Significant impacts, even with preparation. Several days' recovery time for snow and/or ice accumulation events.
Extreme	Historic, widespread, severe impacts. Many days to at least a week of recovery are needed for snow/ice accumulation events.

The average number of cold days is comparable throughout the planning area. Therefore, the severity and scope of a winter storm event that must be mitigated varies from mild to significant, as shown in the WSSI. During a winter storm event, the Weber County planning area can expect to receive 25–35" of snow at lower elevations, while higher levels can experience significantly higher snowfall totals. Ice accumulations vary, with lower elevations receiving 0.1–0.2" and higher elevations and mountainous areas experiencing greater ice accumulations. Temperatures may range from 20 to 32°F from November through March, with winds ranging from 5 to 20 mph. However, higher elevations can experience much higher wind speeds.

Winter weather is variable and can affect many areas of the county. Farr West, Plain City, and Pineview Water Systems are excluded due to no anticipated impacts.

Previous Occurrences

Based on the FEMA Disaster Declarations Database, Weber County has received no designation for winter storm disaster declarations since the last plan update.

On **January 9–10, 2024,** snow squalls developed and moved southward through northern Utah during the evening hours, impacting the evening commutes. Utah Highway Patrol responded to 101 vehicle

[264] Weather Underground, "New NWS Winter Storm Severity Index Tells How Disruptive a Storm Could Be for You." https://www.wunderground.com/article/storms/winter/news/2020-12-02-winter-storm-severity-index-live-nws-communicates-threats-impacts

accidents on January 9 and 143 vehicle accidents on January 10. Some of these accidents will be included in rough damage estimates. Surprisingly, no injuries were reported in these accidents.

On **March 24, 2023,** snow showers caused reduced visibility and wet roads in the area. By 9:45 p.m., falling temperatures caused the on-ramp from northbound Legacy Parkway to northbound Interstate 15 to become covered in ice. This caused multiple vehicles to lose control, blocking the entire on-ramp. A total of 17 passenger vehicles and 2 semitrailers were involved in the accident. Five vehicle occupants were transported to area hospitals with non-life-threatening injuries.

Figure 164 shows the results of a storm in December 2021.



Figure 164: Ogden Snowfall, December 15, 2021[265]

Snowfall on **March 2, 2018,** reached 15" at Bountiful Bench, 14" in Bountiful, 12.5" in Woods Cross, 12" in North Salt Lake, and 9.5" in Centerville. The storm led to over 50 accidents on Interstate 15 in Davis, Weber, and Box Elder counties, including two semitrailer rollovers. One rollover blocked all southbound lanes of Interstate 15 for two hours early on March 4.

According to the Storm Events Database, between **January 2016** and **February 2024,** Weber County experienced 51 winter storm events, including blizzards, cold/wind chill, extreme cold/wind chill, ice storms, winter storms, and winter weather. No deaths, injuries, or crop damage was reported; therefore, they are not included in Table 173.

[265] Standard-Examiner, "Weber County Snowfall, o Drought-Buster, Measured around 7 inches." https://www.standard.net/news/environment/2021/dec/16/weber-county-snowfall-no-drought-buster-measured-around-7-inches/

Table 173: Winter Weather Events in Weber County, January 2016 through January 2024[266]

Location	Date	Event	Property Damage
Wasatch Mountains I-80 North	01/11/2024	Winter Storm	$0
Wasatch Back (Zone)	01/11/2024	Winter Storm	$0
Northern Wasatch Front	01/09/2024	Winter Weather	$75,000
Northern Wasatch Front	03/24/2023	Winter Weather	$200,000
Wasatch Mountains I-80 North	03/09/2023	Winter Storm	$0
Northern Wasatch Front	03/05/2023	Winter Weather	$0
Wasatch Mountains I-80 North	11/08/2022	Winter Storm	$0
Wasatch Mountains I-80 North	01/05/2022	Winter Storm	$0
Northern Wasatch Front	12/27/2021	Winter Weather	$0
Wasatch Mountains I-80 North	12/26/2021	Winter Storm	$0
Wasatch Mountains I-80 North	02/06/2021	Winter Storm	$0
Wasatch Mountains I-80 North	03/06/2019	Winter Storm	$0
Wasatch Mountains I-80 North	02/13/2019	Winter Storm	$0
Wasatch Mountains I-80 North	01/21/2019	Winter Storm	$0
Wasatch Mountain Valleys	01/21/2019	Winter Storm	$0
Northern Wasatch Front	01/21/2019	Winter Storm	$0

[266] National Centers for Environmental Information, "Storm Events Database." https://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29+Blizzard&eventType=%28Z%29+Cold%2FWind+Chill&eventType=%28Z%29+Extreme+Cold%2FWind+Chill&eventType=%28Z%29+Ice+Storm&eventType=%28Z%29+Winter+Storm&eventType=%28Z%29+Winter+Weather&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=2016&endDate_mm=02&endDate_dd=29&endDate_yyyy=2024&county=UTAH%3A49&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=49%2CUTAH

Location	Date	Event	Property Damage
Wasatch Mountain Valleys	01/16/2019	Winter Storm	$0
Northern Wasatch Front	01/06/2019	Winter Storm	$0
Wasatch Mountain Valleys	01/06/2019	Winter Storm	$0
Wasatch Mountains I-80 North	01/05/2019	Winter Storm	$0
Wasatch Mountains I-80 North	03/26/2018	Winter Weather	$0
Wasatch Mountains I-80 North	03/17/2018	Winter Storm	$0
Northern Wasatch Front	03/02/2018	Winter Storm	$20,000
Wasatch Mountains I-80 North	03/02/2018	Winter Storm	$0
Northern Wasatch Front	01/19/2018	Winter Storm	$0
Wasatch Mountain Valleys	01/19/2018	Winter Storm	$0
Wasatch Mountains I-80 North	03/05/2017	Winter Storm	$0
Wasatch Mountain Valleys	02/21/2017	Winter Storm	$0
Wasatch Mountains I-80 North	02/21/2017	Winter Storm	$0
Wasatch Mountains I-80 North	02/06/2017	Winter Storm	$0
Wasatch Mountain Valleys	01/22/2017	Winter Storm	$0
Northern Wasatch Front	01/22/2017	Winter Storm	$0
Wasatch Mountains I-80 North	01/22/2017	Winter Storm	$0
Northern Wasatch Front	01/20/2017	Winter Storm	$0
Wasatch Mountain Valleys	01/10/2017	Winter Storm	$0
Wasatch Mountains I-80 North	01/10/2017	Winter Storm	$0

Location	Date	Event	Property Damage
Northern Wasatch Front	01/03/2017	Winter Storm	$0
Wasatch Mountains I-80 North	01/03/2017	Winter Storm	$0
Wasatch Mountain Valleys	01/02/2017	Winter Storm	$0
Wasatch Mountain Valleys	12/23/2016	Winter Storm	$0
Northern Wasatch Front	12/23/2016	Winter Storm	$0
Wasatch Mountains I-80 North	12/23/2016	Winter Storm	$0
Wasatch Mountains I-80 North	12/15/2016	Winter Storm	$0
Wasatch Mountains I-80 North	12/08/2016	Winter Storm	$0
Northern Wasatch Front	11/28/2016	Winter Storm	$0
Wasatch Mountain Valleys	11/27/2016	Winter Storm	$0
Wasatch Mountains I-80 North	11/27/2016	Winter Storm	$0
Wasatch Mountains I-80 North	03/28/2016	Winter Storm	$0
Wasatch Mountains I-80 North	03/13/2016	Winter Storm	$0
Northern Wasatch Front	01/30/2013	Winter Storm	$0
Wasatch Mountains I-80 North	01/29/2016	Winter Storm	$0
Total			$295,000

Probability of Future Occurrences

Based on historical data and climatological trends, winter storms will likely continue in the region. Given the historical frequency of 37 days of winter weather events between 2016 and 2024, the probability of this hazard event occurring in the future in Weber County is **Highly Likely**.

There is ongoing research and scientific debate regarding the impact of climate change on winter storms. While it is challenging to make specific predictions, some studies suggest that climate change may lead to more variable and extreme weather patterns, potentially affecting the frequency and intensity of winter storms in the region. These changes could alter typical snowfall amounts and distribution in the county.[267]

It is important to note that the effects of climate change on winter storms are still an area of active research, and further studies are needed to provide a more comprehensive understanding of how climate change may impact winter weather in Weber County, Utah.

Vulnerability Analysis

Table 174: Winter Storms Vulnerability Assessment

Plan Participant Name	Asset Type	Description
Weber County	Structures	Structures could be affected by falling tree limbs due to winter storms.
	Systems	Water delivery, wastewater infrastructure, and electrical services are vulnerable.
	Populations	Service/supply interruptions to homebound individuals reliant on home health supplies such as oxygen are severely impacted by these events due to road closures and loss of power.
	Other	None
Hooper	Structures	Winter storms could cause heat loss and access to life-sustaining supplies. Two schools in grades K–6 are very vulnerable if a storm occurs during school hours.
	Systems	Same as County
	Populations	Same as County
	Other	Same as County
Harrisville	Structures	Structures including homes and businesses are vulnerable to the effects of winter storms including trees falling.

[267] Utah.gov, "Utah Chapter 12 Climate Change." https://hazards.utah.gov/wp-content/uploads/Utah-SHMP-Ch12-Climate-Change-1.pdf

Plan Participant Name	Asset Type	Description
	Systems	Roadways are vulnerable to winter storms and can become impassable while snowplows work to keep up.
	Populations	All populations could be affected by winter storms. Seniors in particular are vulnerable to the impacts of this hazard.
	Other	Same as County
Huntsville	Structures	Buildings can be damaged by heavy snow loads. Wind damage may accompany heavy snows.
	Systems	Winter storms can cause power outages and heating issues for residences and public buildings.
	Populations	Same as County
	Other	Same as County
Marriott-Slaterville	Structures	Same as County
	Systems	Communication and transportation systems may be interrupted.
	Population	Same as County
	Other	Same as County
Ogden	Structures	Same as County
	Systems	Same as County
	Populations	Homeless, low income, and elderly populations are likely to be affected.
	Other	Same as County
City of North Ogden	Structures	Same as County

Plan Participant Name	Asset Type	Description
	Systems	Same as County
	Populations	The elderly and youth are at risk.
	Other	Same as County
Pleasant View	Structures	Same as County
	Systems	Same as County
	Populations	Elderly and low-income residents are at risk.
	Other	Same as County
Riverdale	Structures	Same as County
	Systems	Utilities and roadways could be affected.
	Populations	The entire population is at risk, but the homeless are a particular concern.
	Others	Same as County
Roy	Structures	Same as County
	Systems	Roads could become impassible if snow removal capacity is exceeded.
	Populations	Same as County
	Others	Productivity could be affected. Emergency response could be slowed or prevented. City workers could be unable to travel to their work assignments.
South Ogden	Structures	Homes may lose power and heating.
	Systems	Water pipes may freeze and burst and other damage to infrastructure.

Plan Participant Name	Asset Type	Description
	Populations	Elderly residents are particularly vulnerable to cold-related illness. Service disruptions for power our water outages pose significant risks to elderly residents.
	Other	Same as County
Uintah	Structures	Same as County
	Systems	Same as County
	Populations	Road closures and loss of power put vulnerable residents, including the elderly, at risk.
	Other	Same as County
Washington Terrace	Structures	Same as County
	Systems	Transportation services can be interrupted.
	Populations	Same as County
	Other	Same as County
West Haven	Structures	Damage to homes from downed trees.
	Systems	Entire city could be affected by damage to power or other utilities.
	Populations	Safety of residents is a concern
	Other	Same as County
Roy Water Conservancy District	Structures	Facilities due to falling trees.
	Systems	Water systems including water distribution are at-risk.
	Populations	None

Plan Participant Name	Asset Type	Description
	Other	None
Taylor West Weber Water District	Structures	None
	Systems	Storms can create problems with water distribution and receiving chemicals such as chlorine to treat water. Can also contribute to power outages, which disrupt operations.
	Population	None
	Other	None
Ogden School District	Structures	District facilities may be at risk if power or water systems are disrupted.
	Systems	Same as County
	Populations	Employees, students, and residents of the district may be at risk.
	Other	None
Weber Morgan Health Department	Structures	None
	Systems	None
	Populations	None
	Other	None
Weber School District	Structures	Same as County
	Systems	Transportation routes and facility operations could be affected.
	Populations	Employees and students may be at risk.

Plan Participant Name	Asset Type	Description
	Other	None
West Warren-Warren Water Improvement District	Structures	None
	Systems	Excessive snow accumulation could make accessing water meters difficult. Pumps and pipes could freeze, leading to leaks or flooding.
	Populations	Water service to customers could be disrupted.
	Other	None
Central Weber Sewer Improvement District	Structure	Wastewater collection and treatment structures could be damaged.
	Systems	Structural damage could disrupt operations to customers.
	Populations	Disruption of service to district customers.
	Other	None
North View Fire District	Structures	Same as County
	Systems	Same as County
	Populations	Elderly and low-income residents are at risk. District employees could be affected.
	Other	None
Weber Fire District	Structures	Heavy snow contributes to risk of structural collapse and avalanche in canyons and upper valley.
	Systems	Road access is difficult in snowy conditions. Suppression and other operations are also difficult.

Plan Participant Name	Asset Type	Description
	Populations	Residents anywhere in the service area could be affected. Employees may be at risk during response.
	Other	None

Impacts

Winter storms in Weber County could significantly impact people, infrastructure, agriculture, and the economy. People living in areas prone to winter storms may face the risk of property damage, displacement, and potential injury or loss of life. Infrastructure, such as roads, bridges, and utility lines, could be damaged or destroyed, disrupting transportation and essential services. In agricultural areas, winter storms can destroy crops, soil, and irrigation systems, leading to financial losses for farmers and impacting local food supplies. In addition, the region's overall economy may suffer because of the cost of recovery, rebuilding, and potential declines in property values and business activities.

Table 175 presents detailed data on the risk exposure values and the associated costs in the event of winter storms. This information is essential for assessing the financial impact and risk mitigation strategies.

Table 176 and Table 177 present the estimated annual financial losses to buildings and population in Weber County caused by winter storms, including winter weather, cold waves, and ice storms. These data provide an overview of the projected economic impact of winter storms on the area, considering structural damage to buildings and the potential effects on the population.

Table 175: Winter Storm Risk Exposure, Weber County[268]

Hazard	Building Value	Population Equivalence	Population	Agriculture	Total
Cold Wave	$1,362,827,017	$22,067,588,295	1,902.38	$4,156,196	$23,434,571,508
Ice Storm	$42,643,343,203	$3,041,032,800,000	262,158.00	N/A	$3,083,676,143,203
Winter Weather	$42,643,343,203	$3,041,032,800,000	262,158.00	$56,710,116	$3,083,732,853,319

Table 176: Expected Annual Loss from Winter Storms, Weber County[269]

Hazard	Building Value	Population Equiva-lence	Population	Agriculture	Total
Cold Wave	$231	$9,186	0.00	$720	$10,137
Ice Storm	$137,873	$47,372	0.00	N/A	$185,245
Winter Weather	$106,520	$652,241	0.06	$224	$758,986

[268] FEMA, "National Risk Index Weber County Utah." https://hazards.fema.gov/nri/report/viewer?dataLOD=Counties&dataIDs=C49057#SectionExpectedAnnualLoss
[269] Ibid.

Table 177: Expected Annual Loss from Winter Storms to Jurisdictions in Weber County[270]

Jurisdiction	Hazard	Expected Annual Loss	Exposure Loss	Vulnerability Score
Harrisville	Cold Wave	$0	$0	N/A
	Ice Storm	$2.9K	$56B	Relatively Low
	Winter Weather	$14K	$56B	Relatively High
Hooper	Cold Wave	$0	$0	N/A
	Ice Storm	$3.7K	$71B	Relatively Low
	Winter Weather	$18K	$71B	Relatively High
Huntsville	Cold Wave	$3.5K	$8.9B	Relatively Low
	Ice Storm	$4.9K	$47B	Relatively Low
	Winter Weather	$19k	$47B	Relatively High
Marriott–Slaterville	Cold Wave	$0	$0	N/A
	Ice Storm	$1.7K	$28B	Relatively low
	Winter Weather	$7.4K	$28B	Relatively Moderate
North Ogden	Cold Wave	$0	$0	N/A
	Ice Storm	$2.8K	$59B	Relatively Low
	Winter Weather	$8.1K	$59B	Relatively Moderate
Ogden	Cold Wave	$0	$0	N/A
	Ice Storm	$4K	$30B	Relatively Low
	Winter Weather	$9.5K	$30B	Relatively High
Pleasant View	Cold Wave	$0	$0	N/A
	Ice Storm	$4.4K	$68B	Relatively Low
	Winter Weather	$17K	$68B	Relatively High
Riverdale	Cold Wave	$0	$0	N/A
	Ice Storm	$3.9K	$61B	Relatively Low
	Winter Weather	$16K	$61B	Relatively High
Roy	Cold Wave	$0	$0	N/A
	Ice Storm	$3.3K	$71B	Relatively Low
	Winter Weather	$18K	$71B	Relatively High
South Ogden	Cold Wave	$0	$0	N/A
	Ice Storm	$1.8K	$37B	Relatively Low
	Winter Weather	$9.5K	$37B	

[270] Ibid.

Jurisdiction	Hazard	Expected Annual Loss	Exposure Loss	Vulnerability Score
Uintah	Cold Wave	$0	$0	N/A
	Ice Storm	$4.4K	$80B	Relatively Low
	Winter Weather	$21K	$80B	Relatively High
Washington Terrace	Cold Wave	$0	$0	N/A
	Ice Storm	$3.5K	$67B	Relatively Low
	Winter Weather	$17K	$67B	Relatively High
West Haven	Cold Wave	$0	$0	N/A
	Ice Storm	$3.1K	$55B	Relatively Low
	Winter Weather	$14K	$55B	Relatively High

Table 178: Impacts from Winter Storm by Jurisdiction

Plan Participant Name	Impacts
Weber County	Water delivery and wastewater infrastructure is significantly threatened by extreme cold events as well as the secondary failures of electrical services due to frozen lines. Service/supply interruptions to homebound individuals reliant on home health supplies such as oxygen are severely impacted by these events due to road closures and loss of power. Structures could be damaged by falling tree limbs due to winter storms.
City of Harrisville	The city has experienced severe winter storms with low temperatures and heavy snowfall. These storms have caused trees to fall onto roadways, homes, and businesses. It can be challenging to keep up with plowing during heavy snowfall so people are not trapped in their homes. Structures and infrastructure including roadways can be damaged or disrupted in the future. People can also be injured or killed. In particular, the elderly may be impacted. The heavy snow can also make it difficult for seniors to shovel walkways and around vehicles so they can leave their homes.
City of Hooper	Winter storms could cause heat loss and access to life-sustaining supplies. Two schools in grades K–6 are very vulnerable if a storm occurs during school hours. Staff and students may be injured. School activities may be delayed or cancelled.
City of Huntsville	Winter storms could cause wind damage, snow loads on roofs, power outages, and heating issues for residences and public buildings. Residents, particularly vulnerable populations like seniors, could be injured or killed.

Plan Participant Name	Impacts
City of Marriott-Slaterville	Structures may be damaged by falling trees. Winter storms could interrupt communication and transportation. Residents may be injured or killed. People, especially vulnerable populations, could be affected by disruption to services like power.
City of North Ogden	Structures may be damaged by falling tree limbs. People may be injured or killed. Vulnerable populations, particularly the elderly and youth, could be impacted
City of Ogden	**The h**omeless, low-income, and elderly populations could be affected. Windstorms could damage residential homes, public buildings, and facilities, especially those with older or weaker construction. The population could be injured or killed as well as impacted by disruptions to critical infrastructure and services. Communications systems, electrical power, and utility poles are at risk. Trees and vegetation are prone to wind damage, with an increased risk of soil erosion. The economy could be disrupted because businesses must close and services cannot be provided, and there are costs associated with infrastructure repairs and clean-up.
City of Pleasant View	Structures could be damaged by falling tree limbs. People could be injured or killed. Vulnerable populations, particularly the elderly and low-income residents, could be impacted.
City of Riverdale	Utilities and roadways could be damaged or blocked. Structures could be damaged by falling limbs. People, particularly the homeless, could be injured or killed.
City of Roy	**I**f snow removal capacity is exceeded, roads could become impassible and emergency responses slowed or prevented. City workers could be prevented from traveling to their assignments. Economic losses could occur. People could be injured or killed. Structures could be damaged by falling limbs.
City of South Ogden	Winter storms can lead to power outages, leaving homes without heat. Elderly residents are particularly vulnerable to hypothermia and other cold-related illnesses if their homes cannot maintain safe temperatures. Winter storms can damage infrastructure, including water pipes that can freeze and burst. Service disruptions can pose significant risks for elderly residents who rely on consistent access to water, electricity, and heat.
City of Uintah	Structures could be damaged by falling trees. Infrastructure, including power and water systems, could be damaged and transportation routes blocked.

Plan Participant Name	Impacts
	Interruption of services and transportation routes could result in injury or death to the population, including vulnerable populations like the elderly.
City of Washington Terrace	Winter storms pose a threat of interrupting transportation services. Structures can be damaged and people injured or killed.
City of West Haven	There is a risk to the power grid from downed power lines, poles, and trees. Services may be disrupted. Structures and utilities may be damaged. People may be injured or killed.
Roy Water Conservancy District	Facilities could be damaged by falling trees. Water disruption could be disrupted. Customers may be impacted by service disruptions.
Taylor West Weber Water District	Winter storms create problems with distributing water and receiving chemicals, such as chlorine, to treat water, and they can cause power outages which could disrupt operations. Customers could be affected if services are disrupted.
Ogden School District	Necessary systems such as power and water systems could be disrupted. Structures might not be usable without such systems. Employees, students, and residents of the district may be injured or impacted by service disruptions. School activities may be delayed or cancelled.
Weber Morgan Health Department	**Power outages may impact operations.**
Weber School District	There are risks to transportation routes and facility operations. Structures may be damaged. People including employees and students may be injured. If systems are not operational or structures are damaged, school activities may be cancelled or delayed.
West Warren-Warren Water Improvement District	Excessive snow accumulation would make accessing water meters and pumps complex, and frozen water pumps and meters could experience breaks, leaks, and flooding. Customers may be impacted by damage and outages.
North View Fire District	Structures could be impacted by falling tree limbs. Systems, including transportation routes, could be blocked. People could be injured, including the elderly, low-income residents, and district employees. District employees may be impacted when called upon to respond to a winter storm event.

Plan Participant Name	Impacts
Weber Fire District	Winter storms can impact operations anywhere. The upper valley has a history of dealing with heavy snow conditions, which makes access and suppression difficult. The District also responds to collapses and avalanches. District employees may be injured during response initiatives.
Central Weber Sewer Improvement District	Operations of wastewater collection and treatment facilities could be disrupted. Customers could be impacted by service disruptions.

Changes in Development

In regions with substantial winter snowfall, such as Weber County, which averages 51" of snow per year and has a growing population, development can be affected in various ways. First, the need for infrastructure, such as roads, public transportation, and utilities, may increase to support the expanding population. In areas with heavy snowfall, it is crucial to ensure proper snow removal and maintenance of roads and infrastructure to guarantee accessibility and safety during winter.

In addition, the need for housing and commercial spaces may rise as the population grows, leading to increased construction and development. Developers and city planners must consider the impact of winter weather on construction techniques, building materials, and energy-efficient designs to ensure that new structures can withstand harsh winter conditions and contribute to overall sustainability.

Furthermore, as the population increases, there may be a greater demand for winter recreational activities and amenities, which can influence the development of tourism infrastructure, such as ski resorts, winter sports facilities, and accommodations.

Balancing winter weather demands and an increasing population requires thoughtful urban planning, infrastructure development, and sustainable design to create resilient and vibrant communities in such areas.

The increasing population has raised the vulnerability in Northern Weber because of construction in areas at risk of cascading impacts of winter weather, such as heavy snowfall and avalanches.

Table 179: Winter Storms Changes in Development Summary

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Weber County	Increased	The current housing availability crisis and rising numbers of habitual homeless have exposed a growing number of underserved individuals to this hazard.
Harrisville	Decreased	Harrisville is always at risk of significant issues caused by winter storms. The city has hired additional people to help plow roads and keep them clear. In 2017, it adopted a new building ordinance, stating that the city will follow all international building codes as they are adopted.
Hooper	Increased	More homes are being built.
Huntsville	Decreased	Decreased risk because of more emergency preparedness by individuals.
Marriott-Slaterville	Increased	The city has an increased population.
North Ogden	Increased	The city has increased risk because of higher mountain development.
Ogden	Increased	Development in the city will increase population and put a more significant demand on public works and public safety, with an increase in traffic and storm-related issues during storms
Pleasant View	Stayed the Same	The population demographic has stayed constant.
Riverdale	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from winter storm.
Roy	Decreased	Low-income and elderly populations will be affected. Roads requiring snow plowing and winter maintenance have increased, as has maintenance capacity.

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
South Ogden	Decreased	Due to planning, risk has decreased, and tabletop exercises specifically for extreme winter storms have taken place, ensuring readiness for these weather conditions.
Uintah	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from winter storm.
Washington Terrace	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from winter storm.
West Haven	Stayed the Same	Since the last plan update, vulnerability has stayed the same, due to no changes in development.
Ogden School District	Decreased	Decreased risk because some facilities have added systems and generators.
Roy Water Conservancy District	Stayed the Same	Vulnerability has not changed as no information to point to an increase or decrease with this issue
Taylor West Weber Water District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from winter storm.
Weber-Morgan Health Department	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from winter storm.
Weber School District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from winter storm.
West Warren-Warren WID	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from winter storm.

Name	Overall Vulnerability (Increased, Decreased, Stayed the Same)	Discussion
Central Weber Sewer Improvement District	Stayed the Same	Since the last plan update, there have been no changes in development that impact risk from winter storm.
Weber Fire District	Decreased	Weber Fire District trucks are 4-wheel drive or have insta-chains.
North View Fire District	Stayed the Same	The population demographic has stayed constant.

SECONDARY HAZARDS

The cascading or secondary effects of winter weather can include a wide range of impacts on infrastructure, transportation, and public safety. These effects may include:

1. **Transportation Disruptions:** Winter weather can lead to hazardous road conditions, reduced visibility, and transportation delays, impacting daily commutes and travel plans.
2. **Power Outages:** Heavy snow and ice can weigh down power lines and tree branches, leading to power outages and disruptions to the electricity supply.
3. **Property Damage:** Snow and ice accumulation can damage buildings, roofs, and infrastructure, leading to potential repair costs and safety hazards.
4. **Health and Safety Risks:** Cold temperatures and icy conditions can increase the risk of slips, falls, and cold-related illnesses, posing health and safety concerns for individuals.
5. **Economic Impact:** Winter weather can have economic repercussions that affect businesses, tourism, and agriculture and lead to financial losses in affected areas.
6. **Environmental Impact:** Snow and ice can impact local ecosystems, wildlife, and natural habitats, influencing water supply, vegetation, and animal behavior.

The specific consequences can vary depending on the severity and duration of the winter conditions in a particular region.

Capability Assessment

	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 44 CFR § 201.6(c)(3))
	C2. Does the plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement 44 CFR § 201.6(c)(3)(ii))

A thorough understanding of community capabilities can help decision makers identify feasible hazard mitigation actions. The planning team evaluated each jurisdiction's existing authorities, policies, programs, and resources, including staff and funding resources. Opportunities to expand upon and improve these policies and programs were identified in the Mitigation Strategy. The PDM Planning Team successfully engaged with the subject matter expertise and planning support of the Core Work Group throughout the PDM Plan process.

All participating jurisdictions and special districts conducted an analysis of existing authorities and capabilities called a "capability assessment" to develop an inventory its mission, programs, and policies, and evaluate its capacity to carry them out. This assessment identifies potential gaps in the jurisdiction's capabilities and opportunities to expand and improve existing capabilities.

The planning partners viewed all core jurisdictional and special district capabilities as being fully adaptable to meet an organization's needs. Every code can be amended, and every plan can be updated. Such adaptability is itself considered to be an overarching capability. If the capability assessment identified an opportunity to add a missing core capability or expand an existing one, then doing so has been selected as an action in the jurisdiction's action plan, which is included in this plan. The capabilities assessment included evaluations of the planning and regulatory, administrative and technical, financial, education and community outreach, and National Flood Insurance Program capabilities of Weber County and each partner jurisdiction and special district. This process also involved evaluating these capabilities to determine how they could be expanded upon or improved. Most of the results are presented in tables arranged according to the following capabilities:

- Table 180–Table 206: Planning Capabilities
- Table 207–Table 233: Regulations and Ordinances
- Table 234–Table 260: Administrative Capabilities
- Table 261–Table 287: Technical Capabilities
- Table 288–Table 314: Financial Capabilities
- Table 315: Mitigation Funding Sources

- Table 316–Table 342: Education and Outreach Capabilities
- Table 343–Table 368: Floodplain Management, Mapping, and Insurance

The final section of this chapter lists ways that the County and its partners in this planning process can or hope to expand or improve their capabilities in each of these areas.

Planning and Regulatory Capabilities

Jurisdictions are able to develop policies and programs and to implement rules and regulations to protect and serve residents. Local policies are typically identified in community plans, implemented through local ordinances, and enforced by a governmental body.

Jurisdictions regulate land use by adopting building codes and ordinances for zoning, subdivisions, land development, building permits, and floodplain and stormwater management. When effectively prepared and administered, these regulations can lead to hazard mitigation.

Many communities have plans, ordinances, agreements, maps, training, warning systems, etc. in place to help them become more disaster resistant. One of the goals of this Plan is for communities to coordinate existing activities so that individual objectives become part of an overall plan of action.

Table 180: Planning Capabilities of Weber County

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	Yes	It identifies appropriate land use and development based on identified hazards.	June 13, 2023, Lower valley Sept 26, 2023, Upper Valley	As needed
Capital Improvement Plan	Yes	Integrates identified risks and vulnerabilities as part of infrastructure improvements		For the 2025 budget year, we are in process of developing an infrastructure priority list that would plan for

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
				road, bridge, sewer, and storm water infrastructure repair and replacement.
Climate Change Adaptation Plan	No			
Community Wildfire Protection Plan	Yes	Identifies known wildland–urban interface (WUI) areas and preplans response to incidents in those areas to include community education outreach and Firewise actions to protect property	May 2024	Reviewed annually and updated as needed.
Economic Development Plan	No, but in progress to put it into the budget for a work plan to develop one			
Land Use Plan	Yes	Identifies appropriate use for property, integrating known hazards	Unknown	unknown
Local Emergency Operations Plan	Yes	Identifies operations with specific hazard annexes on identified threats	Currently under revision	As needed
Stormwater Management Plan	Yes	Stormwater management is codified through local ordinance.	2013	Modified as needed

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
				based on past events
Annexation Policy Plan	No			
Transportation Plan	Yes	(See the Regional Transportation Plan.)		
Housing Plan	Yes	Planning by the county-wide housing authority provides an established network to provide housing assistance for at-risk and underserved populations. See https://www.webercountyutah.gov/Housing-Authority/	2019	
Regional Transportation Plan	Yes	This plan includes multiple partners, ensuring smooth transportation planning across Northern Utah. These activities are coordinated through the Weber Area Council of Governments (WACOG). See https://www.webercountyutah.gov/community-development/local-transportation-funds.php	2007	unknown
Substantial Damage Plan	No			
Other? (Describe)				

Table 181: Planning Capabilities of Farr West City

Plans	Do you have this plan?	How does this plan relate to mitigation / hazard risk?	When was this plan last updated?	When will it be updated in the future, if known?
General Plan	Yes	Unknown	2024	
Capital Improvement Plan	No			
Climate Change Adaptation Plan	No			
Community Wildfire Protection Plan	No		N/A	Unknown
Economic Development Plan	Yes	Unknown	Unknown	Unknown
Land Use Plan	Yes	Unknown	Unknown	Unknown
Local Emergency Operations Plan	Yes	The Emergency Op's plan is in its own form, a mitigation or pre-plan regarding how to take action during an emergency.	2015	NLT 4th quarter of 2024
Stormwater Management Plan	Yes	The plan covers contamination prevention processes and the education of the city staff and managers of the Storm Water system. It also includes processes for the education of city residents. The process is reviewed each October.	2021	NLT 4th quarter of 2024

Plans	Do you have this plan?	How does this plan relate to mitigation / hazard risk?	When was this plan last updated?	When will it be updated in the future, if known?
		The addition of emergency processes and actions to include the personnel that will act upon an emergency will be included in future revisions of the plan.		
Annexation Policy Plan	Yes	Unknown	Unknown	Unknown
Transportation Plan	Yes	Unknown	Unknown	Unknown
Housing Plan	Yes	Unknown	Unknown	Unknown
Regional Transportation Plan	Yes	Unknown	Unknown	Unknown
Substantial Damage Plan	No	No	N/A	N/A
Other? (Please describe)				

Table 182: Planning Capabilities of the City of Harrisville

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	Yes	It outlines demographics in the City and plans for future growth. It can be used to identify vulnerable groups that might need additional support. This allows the City to be	2023	Unknown

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
		more aware of its residents' needs and to address them before an emergency occurs.		
Capital Improvement Plan	Yes	It lists capital improvements for the current year and the next 10 years. It helps monitor large mitigation strategies and track progress or see a need to adjust goals and expectations.	2022	Unknown
Climate Change Adaptation Plan	No			
Community Wildfire Protection Plan	Yes	It allows the City and North View Fire District to coordinate efforts around high-risk areas. This can help identify what areas might need mitigating steps in.	2021 expiration Dec. 2026	Currently being updated. Will be renewed calendar year 2026.
Economic Development Plan	No			
Land Use Plan	Yes	This element of the general plan describes the policy on sensitive lands. It restricts new development on sensitive lands, including floodplains, watersheds, wetlands, and other geological hazards. This helps mitigate future problems, such as flooding.	2018	Unknown
Local Emergency Operations Plan	Yes	It outlines how the City will respond during an emergency. It identifies when, where, and	2010	Unknown

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
		how to open the Emergency Operations Center and who should be present. It also outlines a committee that will update the City's training and emergency plans.		
Stormwater Management Plan	Yes	It outlines how the City manages stormwater and works to prevent contamination. This can be done by training, education, and inspections to make sure contaminants are not allowed into stormwater.	Unknown	Unknown
Annexation Policy Plan	Yes	This is an element in the general plan, but it does not have a mitigation element.	2019	Unknown
Transportation Plan	Yes	This is an element of the general plan, but it does not have a mitigation element.	2018	Unknown
Housing Plan	Yes	This is an element in the general plan, but it does not have a mitigation element.	2022	Unknown
Regional Transportation Plan	Yes	The plan is maintained by Utah Department of Transportation	Unknown	Unknown
Substantial Damage Plan	No			
Other? (Describe)				

Table 183: Planning Capabilities of the City of Hooper

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	Yes	Stormwater is addressed. Other areas must be addressed.	2022	Reviewed every year and updated in 2–5 years.
Capital Improvement Plan	No	N/A	N/A	N/A
Climate Change Adaptation Plan	No	N/A	N/A	N/A
Community Wildfire Protection Plan	Yes, Weber Fire District	Weber Fire District firefighters are listed as the first responders.	Unknown	Unknown
Economic Development Plan	No	N/A	N/A	N/A
Land Use Plan	Yes	Restrictions on building below flood hazard elevations	2022	In 5 years. But highly unlikely to lower the elevation.
Local Emergency Operations Plan	Yes	In implementation stage. Working on each area of risk. A large portion will be completed by end of 2024	2024	Ongoing
Stormwater Management Plan	Yes	12 critical areas have been identified and City is budgeting to fix most critical areas first and developing a plan to have all areas complete in the next 5 years.	2024	Ongoing

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Annexation Policy Plan	Yes	Unknown	Unknown	Unknown
Transportation Plan	Yes	Unknown	Unknown	Unknown
Housing Plan	Yes	Build only in suitable areas	2022	Ongoing
Regional Transportation Plan	Follows Utah Department of Transportation	N/A	N/A	N/A
Substantial Damage Plan	No	N/A	N/A	N/A
Other? (Describe)				

Table 184: Planning Capabilities of the City of Huntsville

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	Yes	Protects wetlands and floodplains	February 2023	
Capital Improvement Plan	Yes	Could incorporate mitigation actions	Currently updating	N/A
Climate Change Adaptation Plan	No	N/A	N/A	N/A
Community Wildfire Protection Plan	No	N/A	N/A	N/A

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Economic Development Plan	No	N/A	N/A	N/A
Land Use Plan	Yes	Protects wetlands and floodplains	November 2023	July 2024
Local Emergency Operations Plan	Yes	Provides better response to emergency situations		Fall 2024
Stormwater Management Plan	No	N/A	N/A	N/A
Annexation Policy Plan	Yes	It does not.	November 2023	
Transportation Plan	No	N/A	N/A	
Housing Plan	No	N/A	N/A	
Regional Transportation Plan	Yes, Follows Utah Department of Transportation	N/A	Unknown	
Substantial Damage Plan	No	N/A	N/A	
Other? (Describe)				

Table 185: Planning Capabilities of the City of Marriott–Slaterville

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	Yes	Addresses known hazard areas (tries to help keep people out of harm's way).	March 2024	
Capital Improvement Plan	Yes	Highlights priorities and timeline.	November 2023	November 2024
Climate Change Adaptation Plan	No	N/A		
Community Wildfire Protection Plan	No	N/A		
Economic Development Plan	Yes	Attempts to buoy the City in event of economic downturn.	January 2024	
Land Use Plan	Yes	Seeks to promote a balance between commercial, residential, and open space and keep people out of harm's way.	November 2014	Unknown
Local Emergency Operations Plan	Yes	Outlines possible emergency scenarios and response.	September 2015	Unknown
Stormwater Management Plan	Yes	Outlines how compliance with EPA regulations will be achieved & help mitigate flooding.	November 2021	November 2025
Annexation Policy Plan	Yes	Annexes sensitive areas to keep them undeveloped.	August 2023	

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Transportation Plan	Yes	Unknown	September 2020	
Housing Plan	Yes	Unknown	August 2021	
Regional Transportation Plan	No	N/A	N/A	N/A
Substantial Damage Plan	No	N/A	N/A	N/A
Other? (Describe)				

Table 186: Planning Capabilities of the City of North Ogden

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	Yes	It helps guide development.	2022	
Capital Improvement Plan	Yes	It helps guide development and replacement.	2024	2025
Climate Change Adaptation Plan	No	N/A	N/A	N/A
Community Wildfire Protection Plan	No	N/A	N/A	N/A

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Economic Development Plan	No	N/A	N/A	N/A
Land Use Plan	Yes	It helps guide development.	2021	Unknown
Local Emergency Operations Plan	Yes	It established procedures in the Emergency Operations Center.	2020	2024
Stormwater Management Plan	Yes	It ensures adequate retention capabilities.	2021	Unknown
Annexation Policy Plan	Yes	It helps guide development.	2024	
Transportation Plan	Yes	It helps guide development.	2015	Unknown
Housing Plan	Yes	Unknown	Unknown	Unknown
Regional Transportation Plan	Yes, Follows Utah Department of Transportation	Unknown	Unknown	Unknown
Substantial Damage Plan	No	N/A	N/A	N/A
Other? (Describe)				

Table 187: Planning Capabilities of the City of Ogden

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	Yes	It outlines the long-term vision and goals for land use, development, transportation, housing, and community services. It incorporates elements that address hazard mitigation and risk reduction by guiding sustainable development, promoting resilient infrastructure, and integrating safety measures into community planning. Specific sections related to mitigation include: • **Land Use Planning**: Ensures that new developments are in areas with a lower risk of natural hazards, such as floods, landslides, and earthquakes. • **Transportation Planning**: Incorporates strategies to ensure that transportation networks remain functional during and after hazard events. • **Housing Policies**: Encourage the development of housing that is resilient to natural hazards. • **Emergency Services**: Plans for adequate emergency response capabilities and infrastructure to handle disaster events.	2019	Currently underway, should be complete in 2025.
Capital Improvement Plan (CIP)	Yes	The CIP is critical in mitigating hazard risks by allocating funding for infrastructure projects that enhance the community's resilience to natural disasters. Key aspects include: • **Infrastructure Resilience**: Upgrades bridges, roads, and public buildings to withstand earthquakes, floods, and high winds. • **Flood Control**: Invests in stormwater management systems to reduce flooding risks. • **Fire Safety**: Develops water supply enhancements and upgrading firefighting facilities and equipment. • **Emergency Services**: Expands and improves emergency response facilities and communications systems to ensure effective disaster response and recovery.	2023	2024 (yearly)

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
		• **Public Utilities**: Strengthens water and sewer systems to prevent failures during hazard events.		
Climate Change Adaptation Plan	No	N/A	N/A	N/A
Community Wildfire Protection Plan	Yes	Identifies area of concern and relevant stakeholders for the City and helps in mitigation planning and work that must addressed.	2019	2025
Economic Development Plan	Yes	Also known as the Redevelopment Plan, it is integral to hazard mitigation and risk reduction in several ways: • **Land Use Planning**: Directs redevelopment efforts to safer areas less prone to natural hazards, such as floods, landslides, and earthquakes. • **Community Revitalization**: Includes projects that enhance the resilience of existing structures, particularly in economically distressed areas, reducing vulnerability to hazards. • **Infrastructure Investment**: Focuses on improving critical infrastructure, such as transportation networks and utilities, to ensure that they are robust enough to function during and after hazard events. • **Job Creation**: Encourages the growth of industries and businesses that can provide essential services during emergencies, contributing to economic stability during recovery phases. • **Sustainability Initiatives**: Integrate sustainable development practices that reduce environmental impact and increase the community's ability to adapt to climate change and related hazards.	2022	2025

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Land Use Plan	Yes	It is a foundational element in mitigating hazard risks by guiding the development and use of land in ways that minimize exposure to natural hazards. Key aspects include: • **Zoning Regulations**: Establish zones that restrict development in high-risk areas, such as floodplains, steep slopes prone to landslides, and regions with high wildfire risk. • **Development Standards**: Implement building codes and development standards that enhance the resilience of new structures against hazards like earthquakes and high winds. • **Open Space Preservation**: Designates open spaces and natural buffers that can absorb floodwater and reduce erosion. • **Infrastructure Planning**: Ensures that critical infrastructure, such as roads, bridges, and utilities, are located and constructed to withstand natural hazards.	2020	2025 (with the General Plan)
Local Emergency Operations Plan (EOP)	Yes	The Ogden City EOP identifies both natural and hu human-made hazards which may impact residents and it outlines response and recovery activities that local officials should follow if a disaster occurs. Mitigation, prevention, and preparedness planning and activities also are addressed with the aim of making Ogden a more "disaster resistant" community.	2019	Currently updating EOP in 2024.
Stormwater Management Plan	Yes	It is essential for mitigating risks related to flooding and water pollution. It provides a framework for managing runoff and maintaining water quality, which is critical for reducing the impact of storm events. Key elements include: • **Flood Risk Reduction**: Outlines strategies for managing stormwater to prevent flooding in residential, commercial, and industrial areas. This	2018	Anticipated 2026

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
		includes the design and implementation of retention and detention basins, improved drainage systems, and the maintenance of natural waterways. • **Water Quality Protection**: Implements measures to control pollutants from stormwater runoff, protecting local water bodies and ensuring safe water for the community. • **Infrastructure Resilience**: Focuses on upgrading and maintaining stormwater infrastructure to withstand extreme weather events, reducing the risk of system failures during heavy rains. • **Land Use Integration**: Coordinates with land use planning to ensure that new developments include adequate stormwater management systems, reducing the impact of increased impervious surfaces. • **Community Education and Engagement**: Promotes public awareness and involvement in stormwater management practices, encouraging community participation in maintaining and improving stormwater systems.		
Annexation Policy Plan	Yes	Unknown	Unknown	Unknown
Transportation Plan	Yes	Unknown	Unknown	Unknown
Housing Plan	Yes	Unknown	Unknown	Unknown
Regional Transportation Plan	Yes, Wasatch Front Regional Council	It is crucial for mitigating risks associated with natural disasters by ensuring that the City's transportation infrastructure is resilient and capable of supporting evacuation, emergency response, and recovery efforts. Key elements include:	2021	Anticipated 2026

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
		• **Infrastructure Resilience**: Includes strategies for strengthening roads, bridges, and public transit systems to withstand natural hazards, minimizing disruptions and ensuring continuity of transportation services. • **Traffic Management**: Implements traffic control measures and intelligent transportation systems (ITSs) to manage congestion. • **Multi-Modal Transportation**: Promotes the development of diverse transportation options (e.g., public transit, bike lanes, pedestrian pathways) that can provide alternative routes and means of transportation during and after disasters. • **Community Connectivity**: Ensures that all neighborhoods, including vulnerable and underserved communities, have reliable access to transportation, enhancing overall resilience and reducing the impact of disasters.		
Substantial Damage Plan	No	N/A	N/A	N/A
Other? (Describe)				

Table 188: Planning Capabilities of the Ogden City School District

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	No	N/A	N/A	N/A
Capital Improvement Plan	Yes	Mitigates risk by replacing or renovating facilities that do not meet current safety standards.	2023	Annually
Climate Change Adaptation Plan	No	N/A	N/A	N/A
Community Wildfire Protection Plan	No	N/A	N/A	N/A
Economic Development Plan	No	N/A	N/A	N/A
Land Use Plan	No	N/A	N/A	N/A
Local Emergency Operations Plan	Yes	School Emergency Preparedness Plans outline mitigation and response to natural, technological, and hu human-made disasters.	2023	Annually
Stormwater Management Plan	No	N/A	N/A	N/A
Annexation Policy Plan	No	N/A	N/A	N/A
Transportation Plan	Yes	Third party contract with First Student (commercial busing company) could be used for evacuation/temporary relocation.	2023	Annually

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Housing Plan	No	N/A	N/A	N/A
Regional Transportation Plan	No	N/A	N/A	N/A
Substantial Damage Plan	No	N/A	N/A	N/A
Other? (Describe)	No			

Table 189: Planning Capabilities of the City of Pleasant View

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	Yes	It evaluates current conditions and involves lowering risks to residents.	February 2024	2025-26 (ongoing)
Capital Improvement Plan	Yes	It evaluates long-term capital projects and needed improvements.	June 2024	June 2025
Climate Change Adaptation Plan	No	N/A	N/A	N/A
Community Wildfire Protection Plan	No	N/A	N/A	N/A
Economic Development Plan	Yes	Also known as the Adequate Public Facilities Plan, it evaluates long-term water resource and capital facilities planning.	2017	2025

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Land Use Plan	Yes	This is mainly stated in the General Plan and evaluates future land use in the City.	February 2024	2025-26 (ongoing)
Local Emergency Operations Plan	Yes	It includes the City's operations plan in the event of an emergency.	January 2024	2025-26 (ongoing)
Stormwater Management Plan	Yes	It evaluates the City's systems and capacity, including EPA regulations.	January 2024	2025-26 (ongoing)
Annexation Policy Plan	Yes	It reflects the requirements outlined in Utah Code.	2022	2025-26 (ongoing/ as needed)
Transportation Plan	Yes	It addresses both vehicular and pedestrian transportation planning.	2023	2028
Housing Plan	Yes	It addresses efforts to develop moderate-income housing.	2023 (annual update)	2024 (annual update)
Regional Transportation Plan	Yes, Follows Utah Department of Transportation	Unknown	Unknown	Unknown
Substantial Damage Plan	Yes	It is addressed through the City's insurance provider, The Utah Local Governments Trust	2023 (annual update)	2024 (annual update)
Other? (Describe)				

Table 190: Planning Capabilities of the City of Riverdale

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	Emergency Management Fund	Prepares employees and the Community Emergency Response Team (CERT).	2025 Budget Year	July 1, 2024
Capital Improvement Plan	Yes	Purchase of Emergency Response Equipment.	July 1, 2023	July 1, 2024
Climate Change Adaptation Plan	No	N/A	N/A	N/A
Community Wildfire Protection Plan	No	N/A	N/A	N/A
Economic Development Plan	No	N/A	N/A	N/A
Land Use Plan	Yes	Flood plan mitigation for development	September 20, 2011	Unknown
Local Emergency Operations Plan	Yes	Working emergency management document	February 7, 2023	
Stormwater Management Plan	Yes	Managing storm system to control runoff, protect property, and prevent polluted waters.	March 7, 2017	Unknown
Annexation Policy Plan	Yes	Unknown	December 5, 2023	

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Transportation Plan	Yes	Unknown	August 8, 2001	Unknown
Housing Plan	Yes	Unknown	April 19, 2011	Unknown
Regional Transportation Plan	No	N/A	N/A	N/A
Substantial Damage Plan	No	N/A	N/A	N/A
Other? (Describe)				

Table 191: Planning Capabilities of the City of Roy

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	Yes	The Roy City General Strategic Plan outlines the long-term vision and goals for land use, development, transportation, housing, and community services. It incorporates elements that address hazard mitigation and risk reduction by guiding sustainable development, promoting resilient infrastructure, and integrating safety measures into community planning. Specific sections related to mitigation include: • Land Use Planning: Ensures that new developments are in areas with a lower risk of natural hazards such as flooding and landslides. • Transportation Planning: Incorporates strategies to ensure transportation networks remain functional during and after hazard events. • Housing Policies: Encourage the development of housing that is resilient to natural hazards. • Emergency Services: Plans for adequate emergency response capabilities and infrastructure to handle disaster events.	February 2023	Updated when needed. Reviewed every 5 years
Capital Improvement Plan (CIP)	Yes	Several capital improvements are related to redundancy The CIP is critical in mitigating hazard risks by allocating funding for infrastructure projects that enhance the community's resilience	2023	Every 5 Years
Climate Change Adaptation Plan	No	N/A	N/A	N/A

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Community Wildfire Protection Plan	No	N/A	N/A	N/A
Economic Development Plan	Yes	Plan encompasses appropriate building regarding risks associated with Hill Air Force Base and flood plain.	February 2023	2028
Land Use Plan	Yes	No	June 2024	It is continuously being updated
Local Emergency Operations Plan (EOP)	Yes	The Roy City EOP identifies both natural and hu human-made hazards which may impact residents of Ogden, Utah. It outlines the response and recovery activities that local officials should follow if a disaster occurs. Mitigation, prevention, and preparedness planning and activities are also addressed in an attempt to make Roy a more "disaster resistant" community.	Unknown	Being Updated 2025
Stormwater Management Plan	Yes	This plan is essential for mitigating risks related to flooding and water pollution. It provides a framework for managing runoff and maintaining water quality, which is critical for reducing the impact of storm events. Key elements include: • **Flood Risk Reduction**: Outlines strategies for managing stormwater to prevent flooding in residential, commercial, and industrial areas. This includes the design and implementation of retention and detention basins, improved drainage systems, and the maintenance of natural waterways.	Unknown	Unknown

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
		• **Water Quality Protection**: Implements measures to control pollutants from stormwater runoff, protecting local water bodies and ensuring safe water for the community. • **Infrastructure Resilience**: Focuses on upgrading and maintaining stormwater infrastructure to withstand extreme weather events, reducing the risk of system failures during heavy rains. • **Land Use Integration**: Coordinates with land use planning to ensure that new developments include adequate stormwater management systems, reducing the impact of increased impervious surfaces. • **Community Education and Engagement**: Promotes public awareness and involvement in stormwater management practices, encouraging community participation in maintaining and improving stormwater systems.		
Annexation Policy Plan	Yes	Unknown	April 1990	Unknown
Transportation Plan	Yes	Unknown	December 2018	Updated when needed. Reviewed every 5–10 years.
Housing Plan	Yes	Unknown	February 2023	Updated when needed. Reviewed every 5–10 years.

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Regional Transportation Plan	Yes	The Transportation Plan is crucial for mitigating risks associated with natural disasters by ensuring that the city's transportation infrastructure is resilient and capable of supporting evacuation, emergency response, and recovery efforts. Key elements include: • **Infrastructure Resilience:** Includes strategies for strengthening roads, bridges, and public transit systems to withstand natural hazards, minimizing disruptions and ensuring continuity of transportation services. • **Traffic Management:** Implements traffic control measures and intelligent transportation systems (ITS) to manage congestion. • **Multi-Modal Transportation:** Promotes the development of diverse transportation options (e.g., public transit, bike lanes, pedestrian pathways) that can provide alternative routes and means of transportation during and after disasters. • **Community Connectivity:** Ensures that all neighborhoods, including vulnerable and underserved communities, have reliable access to transportation, enhancing overall resilience and reducing the impact of disasters.		Wasatch Front Regional Council updates it every 5 years
Substantial Damage Plan	No	N/A	N/A	N/A
Other? (Please describe.)				

Table 192: Planning Capabilities of the City of South Ogden

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	Yes	It does not.	2024	
Capital Improvement Plan	Yes	It does not.	2023	
Climate Change Adaptation Plan	No	N/A	N/A	N/A
Community Wildfire Protection Plan	No	N/A	N/A	N/A
Economic Development Plan	Yes	It does not.	2023	
Land Use Plan	Yes	It does not.	2024	
Local Emergency Operations Plan	Yes	It does not.	2022	2027
Stormwater Management Plan	Yes	It does not.	2023	
Annexation Policy Plan	No	N/A	N/A	N/A
Transportation Plan	Yes	It does not.	Unknown	Unknown
Housing Plan	Yes	It does not.	Unknown	Unknown
Regional Transportation Plan	Yes	It does not.	Unknown	Unknown
Substantial Damage Plan	No	N/A	N/A	N/A
Other? (Describe)				

Table 193: Planning Capabilities of the City of Uintah

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	Yes	Unknown	2017	Hopefully in the next year.
Capital Improvement Plan	Yes	Unknown	Unknown	Unknown
Climate Change Adaptation Plan	No	N/A	N/A	N/A
Community Wildfire Protection Plan	No	N/A	N/A	N/A
Economic Development Plan	No	N/A	N/A	N/A
Land Use Plan	Yes	Unknown	Unknown	Unknown
Local Emergency Operations Plan D	Yes	Unknown	20 years ago	In the process now.
Stormwater Management Plan	No	N/A	N/A	N/A
Annexation Policy Plan	No	N/A	N/A	N/A
Transportation Plan	Yes	Unknown	2021	N/A
Housing Plan	No	N/A	N/A	N/A

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Regional Transportation Plan	No	N/A	N/A	N/A
Substantial Damage Plan	No	N/A	N/A	N/A
Other? (Describe)				

Table 194: Planning Capabilities of the City of Washington Terrace

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	Yes	It serves as a comprehensive blueprint for sustainable growth and development, integrating land use policies, infrastructure investments, and environmental stewardship. It incorporates strategies for balanced growth, preservation of natural resources, and enhancement of community well-being while promoting resilience to hazards. In this framework, the general plan includes provisions to protect sensitive lands identified by the hazard mitigation plan. These areas are designated as environmentally or geologically fragile and susceptible to natural hazards, such as floods, wildfires, seismic activity, and erosion. Rigorous assessments, informed by scientific data and community input, identify these high-risk zones. To mitigate the risks associated with development in these areas, the general plan restricts the building of structures on sensitive lands. This proactive strategy safeguards human safety and property and also preserves the ecological integrity of critical landscapes. It reduces the potential for damage and disruption from natural disasters, promoting community resilience and minimizing the need for costly recovery efforts. Moreover, the general plan promotes alternative land uses that are compatible with environmental characteristics and hazard potential for sensitive lands. This may include designated recreational areas, conservation zones, and managed natural habitats that support biodiversity and ecosystem services while mitigating exposure to hazards. Public education and stakeholder engagement are integral components of implementing these measures. By raising awareness about the importance of protecting sensitive lands and complying with land use	2019	Unknown

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
		regulations, the general plan fosters community participation in efforts to safeguard natural resources and promote sustainable development. In essence, by integrating the protection of sensitive lands into its broader framework, the general plan supports sustainable growth, resilience to hazards, and enhancement of quality of life for all residents. It provides a forward-thinking strategy that balances economic prosperity with environmental protection, ensuring a resilient and vibrant urban environment for generations to come.		
Capital Improvement Plan (CIP)	Yes	The CIP plays a crucial role in the City's hazard mitigation strategy by thoroughly reviewing the vulnerability of its infrastructure. This review process aims at identifying areas at risk of failure or a significant reduction in service life. By conducting detailed assessments of critical infrastructure components, such as roads, bridges, water supply systems, sewage networks, and public buildings, the CIP helps pinpoint weaknesses that could be exacerbated by natural disasters or other hazardous events. The insights from this vulnerability assessment are essential for the effective implementation of the hazard mitigation plan. The CIP is specifically designed to mitigate future infrastructure failures, focusing on both immediate repairs and long-term enhancements. This proactive approach ensures that infrastructure improvements are prioritized based on their potential for reducing risks and enhancing resilience. Key elements of the CIP include: • **Risk Identification and Prioritization:** By identifying the most vulnerable infrastructure components, the CIP prioritizes projects with the greatest impact on reducing risks. This strategic allocation of resources ensures that the most critical areas receive attention first.	Annually 2023	2024

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
		• **Preventive Measures and Upgrades:** The CIP outlines specific projects to upgrade, repair, and replace infrastructure to prevent failures. This includes using durable materials and modern construction techniques and incorporating resilient design principles to extend the service life of infrastructure. • **Collaboration and Coordination:** The CIP involves collaboration with various stakeholders, including local government agencies, emergency services, and community organizations. This coordinated approach ensures that infrastructure projects are well integrated into the broader hazard mitigation strategy. • **Monitoring and Evaluation:** Continuous monitoring and evaluation are integral to the CIP. Regular reviews of infrastructure and the effectiveness of projects allow for adjustments and improvements over time, ensuring that the City's infrastructure remains resilient to developing hazards. • **Community Involvement and Awareness**: Engaging the community in the planning and implementation process helps raise awareness about the importance of infrastructure resilience. Public education campaigns and community involvement initiatives ensure that residents are informed and supportive of mitigation efforts. In summary, the CIP is the cornerstone of the City's hazard mitigation efforts. By systematically reviewing and addressing infrastructure vulnerabilities, the CIP ensures that the City is better prepared to withstand and recover from hazardous events. This proactive and comprehensive approach protects the City's assets, and it enhances the overall safety and well-being of the community.		
Climate Change Adaptation Plan	No	N/A	N/A	N/A

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Community Wildfire Protection Plan	Yes	The implementation of fire restrictions in and around the wildland–urban interface (WUI) is a critical component of the hazard mitigation plan. These restrictions help reduce the risk of wildfires, which pose significant threats to both natural landscapes and human communities. By enforcing fire restrictions, the City aims to minimize activities that could ignite wildfires, such as open burning, campfires, and using fireworks in vulnerable areas. These measures are especially crucial during high-risk periods, such as dry seasons and periods of high winds, when the likelihood of wildfires is elevated. Besides restricting fire-related activities, the plan includes public education campaigns to raise awareness about fire safety practices. Informing residents and visitors about the dangers of wildfires and the importance of adhering to fire restrictions helps foster a community-wide culture of prevention and vigilance. The plan also promotes the creation and maintenance of defensible space around properties. This involves clearing vegetation, maintaining firebreaks, and using fire-resistant building materials to reduce the likelihood of wildfires spreading to homes and other structures. Furthermore, the implementation of fire restrictions is complemented by collaboration with local fire departments, emergency services, and land management agencies. This coordinated approach ensures that fire suppression resources are readily available and that response plans are well integrated. Overall, the proactive implementation of fire restrictions in the WUI significantly enhances the City's ability to mitigate wildfire risks. By reducing the chance of ignition and spreading, these measures protect lives, property, and natural resources, making the community safer and more resilient.	Unknown	Unknown

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Economic Development Plan	No	N/A	N/A	N/A
Land Use Plan	Yes	Unknown	Unknown	Unknown
Local Emergency Operations Plan (EOP)	Yes	The EOP plays a vital role in hazard mitigation by enhancing public awareness and promoting comprehensive employee training and planning. It includes initiatives to educate the community about potential local emergencies, such as natural disasters, technological hazards, and other critical incidents. Through public awareness campaigns, workshops, and informational materials, the EOP ensures that residents understand the risks they face and the steps they can take to protect themselves and their property. In addition, the EOP emphasizes the importance of employee training and preparedness. Regular training sessions and drills help ensure that staff are well versed in emergency procedures, communication protocols, and the use of emergency equipment. This preparation enables a coordinated and efficient response during actual emergencies, minimizing risks and enhancing the safety of both employees and the public. By fostering a culture of readiness and resilience, the EOP significantly contributes to the community's ability to respond effectively to and recover from emergencies. This proactive approach not only mitigates the impact of hazards but also ensures a swift and organized recovery process, thereby enhancing the overall resilience of the community.	Unknown	Unknown

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Stormwater Management Plan	Yes	This hazard mitigation plan supports ongoing mitigation efforts by conducting annual reviews of stormwater hazards. These reviews are comprehensive assessments that identify risks and vulnerabilities in the stormwater management system. Based on these assessments, the plan makes detailed recommendations for improvements, ensuring that resources are allocated effectively to address identified issues. This proactive approach allows for the implementation of targeted measures, such as upgrading infrastructure, enhancing drainage systems, and incorporating green infrastructure solutions. By continually refining stormwater management strategies, the City can reduce the impact of flooding, protect property, and enhance the safety and resilience of the communities.	2021	As regulations change or as needed.
Annexation Policy Plan	Yes	Does not impact the mitigation plan.	Unknown	Unknown
Transportation Plan	No	N/A	N/A	N/A
Housing Plan	Yes	Does not Impact the mitigation plan.	Unknown	Unknown
Regional Transportation Plan	Yes	The City participates in the regional transportation plan and sets priorities for road improvements in cooperation with the regional plan.	Unknown	Unknown
Substantial Damage Plan	No	N/A	N/A	N/A

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Other? (Describe)				

Table 195: Planning Capabilities of the City of West Haven

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	Yes	It does not.	12/2014	12/2024
Capital Improvement Plan	No	N/A	N/A	N/A
Climate Change Adaptation Plan	No	N/A	N/A	N/A
Community Wildfire Protection Plan	No	N/A	N/A	N/A
Economic Development Plan	No	Recently hired a consulting group	N/A	N/A
Land Use Plan	Yes	See General Plan	Unknown	Unknown
Local Emergency Operations Plan	Yes	It relates to preparedness.	2020	2025
Stormwater Management Plan	Yes	Unknown	2024	
Annexation Policy Plan	Yes	Unknown	Unknown	2025
Transportation Plan	No	N/A	N/A	N/A
Housing Plan	No	N/A	N/A	N/A
Regional Transportation Plan	Yes, Follows Utah	Unknown	Unknown	Unknown

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
	Department of Transportation			
Substantial Damage Plan	No	N/A	N/A	N/A
Other? (Describe)				

Table 196: Planning Capabilities of Plain City

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	Yes	Unknown	2018	Unknown
Capital Improvement Plan	Yes	Unknown	2018	Unknown
Climate Change Adaptation Plan	No	N/A	N/A	N/A
Community Wildfire Protection Plan	Yes	Unknown	Unknown	Unknown
Economic Development Plan	Yes	Unknown	2018	Unknown
Land Use Plan	Yes	Unknown	2018	Updating currently
Local Emergency Operations Plan	Yes	Unknown	Unknown	Unknown

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Stormwater Management Plan	Yes	Unknown	2020	Unknown
Annexation Policy Plan	Yes	Unknown	Unknown	Unknown
Transportation Plan	Yes	Unknown	2008	Unknown
Housing Plan	Yes	Unknown	Unknown	Unknown
Regional Transportation Plan	Yes, UDOT	Unknown	Unknown	Unknown
Substantial Damage Plan	No	N/A	N/A	N/A
Other? (Describe)				

Table 197: Planning Capabilities of the Hooper Water Improvement District

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	No	N/A	N/A	N/A
Capital Improvement Plan	Yes	Unknown	2023	2028
Climate Change Adaptation Plan	No	N/A	N/A	N/A
Community Wildfire Protection Plan	No	N/A	N/A	N/A

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Economic Development Plan	No	N/A	N/A	N/A
Land Use Plan	No	N/A	N/A	N/A
Local Emergency Operations Plan	Yes	Unknown	Unknown	Unknown
Stormwater Management Plan	No	N/A	N/A	N/A
Annexation Policy Plan	Yes	Unknown	Unknown	Unknown
Transportation Plan	No	N/A	N/A	N/A
Housing Plan	No	N/A	N/A	N/A
Regional Transportation Plan	No	N/A	N/A	N/A
Substantial Damage Plan	No	N/A	N/A	N/A
Other? (Describe)				

Table 198: Planning Capabilities of the Pineview Water System

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	No,	N/A	N/A	N/A
Capital Improvement Plan	Yes	No	1996	2026

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Climate Change Adaptation Plan	No	N/A	N/A	N/A
Community Wildfire Protection Plan	N/A	N/A	N/A	N/A
Economic Development Plan	N/A	N/A	N/A	N/A
Land Use Plan	N/A	N/A	N/A	N/A
Local Emergency Operations Plan	Yes	Unknown		
Stormwater Management Plan	No	N/A	N/A	N/A
Annexation Policy Plan	N/A	N/A	N/A	N/A
Transportation Plan	N/A	N/A	N/A	N/A
Housing Plan	N/A	N/A	N/A	N/A
Regional Transportation Plan	N/A	N/A	N/A	N/A
Substantial Damage Plan	No	N/A	N/A	N/A
Other? (Describe)				

Table 199: Planning Capabilities of the Roy Water Conservancy District

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	No, RWCD not required to have one	N/A	N/A	N/A
Capital Improvement Plan	Yes	As infrastructure is replaced or new construction occurs, the risk of failure of the new should decline.	2022	Every 5 years, the next will be 2027
Climate Change Adaptation Plan	No, RWCD not required to have one	N/A	N/A	N/A
Community Wildfire Protection Plan	No, RWCD not within a wildfire area	N/A	N/A	N/A
Economic Development Plan	No, RWCD does not do economic development	N/A	N/A	N/A
Land Use Plan	No, RWCD does not have land use authority	N/A	N/A	N/A
Local Emergency Operations Plan	Yes	Outlines how to operate system in an emergency situation	2010	Unknown
Stormwater Management Plan	No, RWCD does not have stormwater authority	N/A	N/A	N/A
Annexation Policy Plan	Yes	As landowners request annexation, the risks of annexing the land is evaluated	2022	Anticipated in 2027
Transportation Plan	No, RWCD does not do	N/A	N/A	N/A

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
	transportation planning			
Housing Plan	No, RWCD does not have housing authority	N/A	N/A	N/A
Regional Transportation Plan	No, RWCD does not do regional transportation planning	N/A	N/A	N/A
Substantial Damage Plan	No	N/A	N/A	N/A
Other? (Describe)				

Table 200: Planning Capabilities of Taylor West Weber Water District

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	Yes	We look at the development vs. the water demand and determine how much water will be needed for future growth. Thus preventing us from running out of water in extreme conditions.	2023	5-7 years
Capital Improvement Plan	Yes	Having a capital improvement plan helps us prepare and keep up with growth, mitigating future problems to deliver water.	2023	5-7 years
Climate Change Adaptation Plan	Water Conservation Plan	Our water conservation plan helps us know what to do when drought occurs and helps us inform the water consumers as to	2024	Every 5 years

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
		what steps to take to conserve water.		
Community Wildfire Protection Plan	No	N/A	N/A	N/A
Economic Development Plan	Please see Weber County's plan, as well as Hooper, West Haven, and Marriott/ Slaterville's plan.	Taylor West Weber Water District works with Weber County Planning to determine what kind of growth is planned for and how much water is needed for the growth.	N/A	Done by the county
Land Use Plan	Please see Weber County, Hooper, West Haven and Marriott/ Slaterville's plans.	N/A	N/A	Done by county and cities
Local Emergency Operations Plan	Yes	We work with each city/county as needed and communicate with them as to what correlating actions must take place in our plans with each entity.	2020	As needed
Stormwater Management Plan	N/A	N/A	N/A	N/A
Annexation Policy Plan	Yes	As new lots and areas request water Annexation occurs, it is required to be in the boundaries of the water district to have water service provided.	Unknown	Unknown
Transportation Plan	N/A	N/A	N/A	N/A
Housing Plan	N/A	N/A	N/A	N/A

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Regional Transportation Plan	N/A	N/A	N/A	N/A
Substantial Damage Plan	Yes	We work with our insurance company to determine our risks and coverage needs	Unknown	Unknown
Other? (Describe)				

Table 201: Planning Capabilities of Weber Morgan Health Department

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	No	N/A	N/A	N/A
Capital Improvement Plan	Yes	The CI plan is a tool to support maintenance of the HD facilities including, but not limited to, generators, refrigeration systems, HVAC, landscaping, fleet vehicles, etc., to ensure all are in good working order in case of an emergency incident.	2023	Every year the plan is reviewed and updated. Equipment is on a replacement schedule and is regularly a five-year program.
Climate Change Adaptation Plan	No	N/A	N/A	N/A
Community Wildfire Protection Plan	No	N/A	N/A	N/A
Economic Development Plan	No	N/A	N/A	N/A

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Land Use Plan	No	N/A	N/A	N/A
Local Emergency Operations Plan	Yes	The Weber Morgan Health Department (WMHD) All-Hazards Plan (AHP) outlines the WMHD's approach to operations during public health emergencies. It provides general guidance for emergency management activities and an overview of the health department's methods of mitigation, preparedness, response and recovery. The WMHD Emergency Support Function (ESF)-8 Plan-Health & Medical Services gives a broad overview of the health and medical agencies and entities' roles and responsibilities and how they work together during a public health emergency (WMHD (2018) WMHD ESF-8 Plan). The AHP focuses on the health departments' role in all public health emergencies.	2024	The WMHD All-Hazards Plan is reviewed every year to ensure updates are made.
Stormwater Management Plan	No	N/A	N/A	N/A
Annexation Policy Plan	No	N/A	N/A	N/A
Transportation Plan	No	N/A	N/A	N/A
Housing Plan	No	N/A	N/A	N/A
Regional Transportation Plan	No	N/A	N/A	N/A
Substantial Damage Plan	COOP	The WMHD COOP establishes policy, procedures, and guidance to ensure the execution of	2023	COOPs are reviewed every year

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
		WMHD mission essential functions (EFs) in the event of an emergency that threatens, incapacitates, or disrupts standard operations leading to the relocation of WMHD personnel, equipment, data, or other resources to an alternate facility. Specifically, this document is designed to: • Ensure that WMHD is prepared to respond to, recover from or otherwise mitigate the impact of emergencies or threats. • Ensure that WMHD is prepared to provide EFs to the community when daily operations are disrupted by emergencies or threats.		
Other? (Describe)				

Table 202: Planning Capabilities of the Weber School District

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	Yes	Addresses safety and security concerns related to schools, including creating secure entryways and installing enhanced communications systems.	June 2024	June 2028
Capital Improvement Plan	No	N/A	N/A	N/A
Climate Change Adaptation Plan	No	N/A	N/A	N/A

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Community Wildfire Protection Plan	No	N/A	N/A	N/A
Economic Development Plan	No	N/A	N/A	N/A
Land Use Plan	No	N/A	N/A	N/A
Local Emergency Operations Plan	Yes	The district and individual schools maintain Emergency Operations Plans (EOPs), which include hazard-specific indexes.	Annually	
Stormwater Management Plan	Yes	The district maintains stormwater management plans related to district properties.	Annually	
Annexation Policy Plan	No	N/A	N/A	N/A
Transportation Plan	No	N/A	N/A	N/A
Housing Plan	No	N/A	N/A	N/A
Regional Transportation Plan	No	N/A	N/A	N/A
Substantial Damage Plan	No	N/A	N/A	N/A
Other? (Describe)				

Table 203: Planning Capabilities of the West Warren–Warren Water Improvement District

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	No	N/A	N/A	N/A
Capital Improvement Plan	Yes	It allows for 1–2 water storage tanks, to ensure that water is there to fight fires, contaminated water, drought, damaged pumps and lines, etc. The plan also allows for looping water lines so that the flow can be continuous if a part of the line is damaged and must be shut down. There is less chance that the community will be cut off from water.	August 2023	Will soon start a new feasibility study to update the utility structure, the use of funds for capital improvement, annexation, increasing fees, use of secondary water, etc. It should be completed by the end of 2024.
Climate Change Adaptation Plan	No	N/A	N/A	N/A
Community Wildfire Protection Plan	No	N/A	N/A	N/A
Economic Development Plan	No	N/A	N/A	Beginning a feasibility study proposal for economic development in the area regarding utility infrastructure. The study should be completed by the end of 2025.
Land Use Plan	No	N/A	N/A	N/A

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Local Emergency Operations Plan	Yes	This helps with communicating with the community and how to keep culinary water flowing and repair.	Summer 2023	Unsure. It might be addressed in either of the new studies.
Stormwater Management Plan	No	N/A	N/A	N/A
Annexation Policy Plan	No	N/A	N/A	N/A
Transportation Plan	No	N/A	N/A	N/A
Housing Plan	No	N/A	N/A	N/A
Regional Transportation Plan	No	N/A	N/A	N/A
Substantial Damage Plan	No	N/A	N/A	N/A
Other? (Describe)				

Table 204 Planning Capabilities of the Central Weber Sewer Improvement District

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	No			
Capital Improvement Plan	Yes	Capital upgrades are planned to assess capacity and	2023	2028

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
		condition improvements.		
Climate Change Adaptation Plan	No			
Community Wildfire Protection Plan	No			
Economic Development Plan	No			
Land Use Plan	No			
Local Emergency Operations Plan	Yes	Identifies response and recovery expectations.	Unknown	Unknown
Stormwater Management Plan	Yes	Can be used to mitigate flood risk through stormwater management.	Unknown	Unknown
Annexation Policy Plan	No			
Transportation Plan	No			
Housing Plan	No			

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Regional Transportation Plan	No			
Substantial Damage Plan	No			
Other? (Please describe)				

Table 205: Planning Capabilities of the Weber Fire District

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan	Yes	Defines assets and future resources	2022	2025
Capital Improvement Plan	Yes	Wildland fires, flooding, earthquake preparedness	Every year	This year
Climate Change Adaptation Plan	Yes, In progress	Adapting to provide better flood control	Last year	This year
Community Wildfire Protection Plan	Yes	Reduce fuels next to structures	Every year	
Economic Development Plan	No	N/A	N/A	N/A
Land Use Plan	No	N/A	N/A	N/A
Local Emergency Operations Plan	Yes	Participate with the County and its cities, and other departments.	Every year	

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Stormwater Management Plan	No	N/A	N/A	N/A
Annexation Policy Plan	No	N/A	N/A	N/A
Transportation Plan	No	N/A	N/A	N/A
Housing Plan	No	N/A	N/A	N/A
Regional Transportation Plan	No	N/A	N/A	N/A
Substantial Damage Plan	No	N/A	N/A	N/A
Other? (Describe)				

Table 206: Planning Capabilities of the North View Fire District

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
General Plan/ Land Use Plan	Yes	It evaluates current conditions and includes a plan to lower risks to residents.	April 2023	Approx 2028
Capital Improvement Plan	No	N/A	N/A	N/A
Climate Change Adaptation Plan	No	N/A	N/A	N/A
Community Wildfire Protection Plan	Yes	The District identifies hazard areas and works with homeowners on removing dead and fallen debris.	June 2023	Yearly

Plan	Do you have this plan?	How does it relate to mitigation or hazard risk?	When was it last updated?	When is the next update?
Economic Development Plan	No	N/A	N/A	N/A
Land Use Plan	No	N/A	N/A	N/A
Local Emergency Operations Plan	Yes	Unknown	Unknown	Unknown
Stormwater Management Plan	No	N/A	N/A	N/A
Annexation Policy Plan	Yes	Unknown	Unknown	Unknown
Transportation Plan	No	N/A	N/A	N/A
Housing Plan	No	N/A	N/A	N/A
Regional Transportation Plan	No	N/A	N/A	N/A
Substantial Damage Plan	No	N/A	N/A	N/A
Other? (Describe)				

Table 207: Regulations and Ordinances of Weber County

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	Yes; 2021 International Building Code – The code states	Yes	Yes	12/22/2020	Unknown

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
	the specific editions of a nationally recognized code authority as adopted and amended by the State of Utah and published in Title 15A of the Utah Code, Chapter 2, Sections 103 and 104, are adopted as the building code of the County.				
Flood Insurance Rate Maps	Yes	Yes	Yes	11/30/2023	
Floodplain Ordinance	Yes	Yes	Yes	6/2/2015	Unknown
Subdivision Ordinance	Yes	Yes	Unknown	Unknown	Unknown
Zoning Ordinance	Yes	Yes	Yes	Unknown	Unknown
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	Yes	Yes	Yes	Unknown	Unknown
Acquisition of Land for	Yes	Unknown	Yes	Unknown	Unknown

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Open Space and Public Recreation Use					
Prohibition of Building in At-Risk Areas	Yes	Unknown	Unknown	Unknown	Unknown
Other? (Describe)					

Table 208: Regulations and Ordinances of Farr West City

Regulations	Do you have this?	Does this regulation/ordinance effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated? When will it next be updated?
Building Code	Yes: 1. The International Building Code (IBC), promulgated by the International Code Council, and amended and adopted by the Utah State Legislature, the International Residential Code (IRC) promulgated by the International Code Council, and	Yes	Yes	Unknown

Regulations	Do you have this?	Does this regulation/ordinance effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated? When will it next be updated?
	amended and adopted by the Utah State Legislature; 2. The National Electrical Code (NEC) promulgated by the National Fire Protection Association, and amended and adopted by the Utah State Legislature; 3. The International Plumbing Code (IPC) promulgated by the International Code Council and amended and adopted by the Utah State Legislature; 4. The International Mechanical Code (IMC) as amended and adopted by the Utah State Legislature; 5. The International Fuel Gas Code as amended and adopted by			

Regulations	Do you have this?	Does this regulation/ordinance effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated? When will it next be updated?
	the Utah State Legislature; 6. The International Energy Conservation Code as amended and adopted by the Utah State Legislature; 7. The International Existing Building Code as amended and adopted by the Utah State Legislature; 8. The National Manufactured Housing Construction and Safety Standards Act (HUD Code) as promulgated by the Department of Housing and Urban Development and published in the Federal Register as set forth in 24 CFR parts 3280 and 3282; and 9. The 1994 edition of NCSBCS			

Regulations	Do you have this?	Does this regulation/ordinance effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated? When will it next be updated?
	A225.1 manufactured home installations promulgated by the National Conference of States on Building Codes and Standards (NCSBCS).			
Flood Insurance Rate Maps	No	N/A	N/A	N/A
Floodplain Ordinance	No	N/A	N/A	N/A
Subdivision Ordinance	Yes	Yes	Yes	Unknown
Zoning Ordinance	Yes	Yes	Yes	Unknown
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	Yes	Yes	Yes	Unknown
Acquisition of Land for Open Space and Public Recreation Use	Yes	Yes	Yes	Unknown

Regulations	Do you have this?	Does this regulation/ordinance effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated? When will it next be updated?
Prohibition of Building in At-Risk Areas	No	N/A	N/A	N/A
Other? (Describe)				

Table 209: Regulations and Ordinances of the City of Harrisville

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	Yes	Yes. It allows the City to enforce the most up-to-date building codes.	Code states that the City will abide by current editions of IBC,* IECC, IFGC, IMC, IPC, IRC, and NEC. The building inspector is on site at developments and projects to make sure that they abide by the building codes.	Adopted in 2017	City will adopt new codes as they are adopted by the inter-national code council.
Flood Insurance Rate Maps	Yes	Unknown	Unknown	2023	
Floodplain Ordinance	Yes	Yes. It details who is responsible for ensuring that new development is built in the proper areas. It also has	Yes. The Public Works Director and City Engineer review new development plans to make sure they comply with	November 14, 2023	

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
		requirements for meeting mitigation goals and outlines penalties for development that does not comply with required codes.	code. Staff review potential developments to make sure all code is met and then conduct inspections during construction to ensure compliance with standards.		
Subdivision Ordinance	Yes	Yes. It outlines requirements for starting the development of a property. It includes stormwater plans that meet public works standards and City codes. Inspections are done by the City's building official.	Yes. This ordinance is enforced by the Public Works Director and City Engineer, who review plans and inspect development in the City.	November 14, 2023	
Zoning Ordinance	Yes	No. No part of the ordinance helps with mitigation.	Unknown	2017	As needed
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	Yes	A stormwater ordinance lays out standards for stormwater practices. It lists what is allowed for stormwater systems and that the City will abide by all federal, state, and local laws.	Yes. The ordinance gives the public works department the authority to assess fines for not complying with stormwater regulations or dumping unauthorized materials into the stormwater system.	February of 2020	Unknown

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	No	N/A	N/A	N/A	N/A
Other? (Describe)					

Note: IBC = International Building Code, IECC = International Energy Conservation Code, IFGC = International Fuel Gas Code, IMC = International Mechanical Code, IPC = International Plumbing Code, IRC = International Residential Code, NEC = National Electrical Code.

Table 210: Regulations and Ordinances of the City of Hooper

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	Yes; International Building Code 2021	Yes	Yes	N/A	
Flood Insurance Rate Maps	Unknown	N/A	N/A	N/A	N/A
Floodplain Ordinance	Yes	Yes	Yes	2022	Will be updated when the General Plan is reviewed every 2–5 years.

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Subdivision Ordinance	Yes	Yes	Yes	2022	Will be looked at when General Plan is reviewed.
Zoning Ordinance	Yes	Yes	Yes	2022	Will be looked at when General Plan is reviewed.
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	Yes (Storm Water)	Yes	Yes	Ongoing	
Acquisition of Land for Open Space and Public Recreation Use	Yes	Unknown	Yes	Unknown	
Prohibition of Building in At-Risk Areas	Yes	Yes	Yes	2022	When General plan is opened.
Other? (Describe)					

Table 211: Regulations and Ordinances of the City of Huntsville

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	Yes; 2021 International Building Code	Yes	Yes	March 2020	
Flood Insurance Rate Maps	Yes	Yes	Yes	2016	
Floodplain Ordinance	Yes	Yes	Yes	April 2024	
Subdivision Ordinance	Yes	Yes	Yes	March 2023	July 2024
Zoning Ordinance	Yes	Yes	Yes	April 2024	
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	Yes	Yes	Yes	April 2024	
Acquisition of Land for Open Space and Public Recreation Use	Yes	Yes	Yes	March 2020	
Prohibition of Building in At-Risk Areas	Yes	Yes	Yes	April 2024	
Other? (Describe)					

Table 212: Regulations and Ordinances of the City of Marriott–Slaterville

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	Yes; the most current edition of the International Building as adopted by the Utah Uniform Building Code Commission - 2021 International Building Code	Yes	Yes	March 2024	
Flood Insurance Rate Maps	Yes	No	No	November 2023	
Floodplain Ordinance	Yes	Yes	Yes	November 2023	
Subdivision Ordinance	Yes	Yes	Yes	March 2024	Currently being updated per state legislature
Zoning Ordinance	Yes	Yes	Yes	March 2024	
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	Yes	Yes	Yes	February 2023	

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Acquisition of Land for Open Space and Public Recreation Use	Yes	Yes	Yes	Unknown	Unknown
Prohibition of Building in At-Risk Areas	Yes	No	Yes	November 2023	
Other? (Describe)					

Table 213: Regulations and Ordinances of the City of North Ogden

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	Yes; current adopted Utah State Building Code (based on the 2021 International Building Code)	Yes	Yes	2021	
Flood Insurance Rate Maps	Yes	Yes	Yes	2021	
Floodplain Ordinance	Yes	Yes	Yes	2021	
Subdivision Ordinance	Yes	Yes	Yes	2021	

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Zoning Ordinance	Yes	Yes	Yes	2021	
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	No	N/A	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	No	N/A	N/A	N/A	N/A
Other? (Describe)					

Table 214: Regulations and Ordinances of the City of Ogden

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	Yes; State of Utah adopted construction codes (including the 2021 edition of the International Building Code)	It addresses current hazards and enforces building codes to current standards.	Yes, Code enforcement division and inspection.	Follows current building codes.	Updated when new codes are adopted.
Flood Insurance Rate Maps (FIRMs)	Yes	FIRMs are crucial for identifying areas at risk of flooding. They inform land use planning, zoning, and floodplain management, helping to minimize flood risk by guiding development away from high-risk areas and implementing appropriate mitigation measures in vulnerable zones.	FIRMs are administered by the Public Services Department in coordination with FEMA. The maps are used to enforce floodplain management regulations and inform building codes and insurance requirements. Compliance is ensured through permit reviews, inspections, and adherence to the National Flood Insurance Program (NFIP) standards.	2023	Unknown
Floodplain Ordinance	Yes	It aims to reduce flood risks by regulating development in designated floodplain areas to maintain natural floodplain functions. It	Administered by the Public Services Department, which reviews	2019, 2024	

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
		requires elevation or floodproofing of structures.	development proposals and conducts inspections to ensure compliance.		
Subdivision Ordinance	Yes	Unknown	Yes	1979	
Zoning Ordinance	Yes	Unknown	Yes	1999	
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	No	N/A	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	No	N/A	N/A	N/A	N/A
Other? (Describe)					

Table 215: Regulations and Ordinances of the Ogden City School District

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	No	N/A	N/A	N/A	N/A
Flood Insurance Rate Maps	No	N/A	N/A	N/A	N/A
Floodplain Ordinance	No	N/A	N/A	N/A	N/A
Subdivision Ordinance	No	N/A	N/A	N/A	N/A
Zoning Ordinance	No	N/A	N/A	N/A	N/A
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	No	N/A	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	No	N/A	N/A	N/A	N/A
Other? (Describe)					

Table 216: Regulations and Ordinances of the City of Pleasant View

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	Yes; 2021 International Building Code	Yes	Yes	Adopted the 2021 building codes.	Will adopt the 2024 codes when they are released.
Flood Insurance Rate Maps	No	N/A	N/A	N/A	N/A
Floodplain Ordinance	No	N/A	N/A	N/A	N/A
Subdivision Ordinance	Yes	Yes	Yes	February 2024	Ongoing
Zoning Ordinance	Yes	Yes	Yes	Continually updated.	
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	Yes	Yes	Yes	Continually updated.	
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	Yes	Yes. Has restrictions for water source protection areas.	Yes	As needed	
Other? (Describe)					

Table 217: Regulations and Ordinances of the City of Riverdale

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	Yes; adopted the codes adopted by the State of Utah. Currently building code is the 2021 International Building Code.	Yes	Yes		
Flood Insurance Rate Maps	No	N/A	N/A	N/A	N/A
Floodplain Ordinance	Yes	Yes	Yes	October 17, 2023	
Subdivision Ordinance	Yes	Yes	Yes	December 4, 2012	
Zoning Ordinance	Yes	Yes	Yes	January 17, 2012	
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	No	N/A	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	Yes	Yes	Yes	2001	Unknown

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Prohibition of Building in At-Risk Areas	Yes	Yes	Yes	October 17, 2023	
Other? (Describe)					

Table 218: Regulations and Ordinances of the City of Roy

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	Yes; Roy City has adopted minimum design and construction requirements found in the state amended 2021 IBC, IPC, IMC, IFGC and IRC, as well as the 2020 NEC.	It addresses current hazards and enforces building codes to current standards.	Yes	2021	updated every three (3) years
Flood Insurance Rate Maps (FIRMs)	Yes	FIRMs are crucial for identifying areas at risk of flooding and implementing appropriate mitigation measures in vulnerable zones.	FIRMs are administered by the Public Services Department in coordination with FEMA. The maps are used to enforce floodplain management		Whenever FEMA updates it

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
		They inform land use planning, zoning, and floodplain management, helping to minimize flood risk by guiding development away from high-risk areas.	regulations and inform building codes and insurance requirements. Compliance is ensured through permit reviews, inspections, and adherence to the NFIP.		
Floodplain Ordinance	Yes	Unknown	Yes	November 2023. Updates are when required by the State of Utah	
Subdivision Ordinance	Yes	No	Yes	December 2023 Updated when needed	
Zoning Ordinance	Yes	No	Yes	December 2023 Updated when needed	
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	No	N/A	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	No	No	A plan is in place to maintain the current parks and open space.	N/A	N/A

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Prohibition of Building in At-Risk Areas	No	N/A	N/A	N/A	N/A
Other? (Describe)					

Table 219: Regulations and Ordinances of the City of South Ogden

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	Yes; officially adopt the code authorities adopted by Utah as set out in Utah Code section 15A-2-103 (currently 2021 International Building Code)	Unknown	Unknown	11/20/2028	Unknown
Flood Insurance Rate Maps	No	N/A	N/A	N/A	N/A
Floodplain Ordinance	No	N/A	N/A	N/A	N/A
Subdivision Ordinance	Yes	Unknown	Unknown	Unknown	Unknown

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Zoning Ordinance	Yes	Unknown	Unknown	Unknown	Unknown
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	No	N/A	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	No	N/A	N/A	N/A	N/A
Other? (Describe)					

Table 220: Regulations and Ordinances of the City of Uintah

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	Yes; the standards as adopted by the state in Utah Code Annotated section 15A-2-103 (currently 2021 International Building Code)	Yes	Yes	2013	Unknown
Flood Insurance Rate Maps	Yes	Yes	Yes	2023	Unknown
Floodplain Ordinance	Yes	Yes	Yes	2015	Unknown
Subdivision Ordinance	Yes	Yes	Yes	2001	Unknown
Zoning Ordinance	Yes	Yes	Yes	2013	Unknown
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	No	N/A	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A	N/A	N/A

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Prohibition of Building in At-Risk Areas	No	N/A	N/A	N/A	N/A
Other? (Describe)					

Table 221: Regulations and Ordinances of the City of Washington Terrace

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	Yes; the City adopts the codes outlined in the Utah Code Annotated §10-3-711, 1953 (2021 International Building Code)	The building code plays a crucial role in hazard mitigation by reducing hazardous impacts. It oversees construction projects to ensure that they adhere to safety standards, preventing developments that could otherwise increase hazards and risks. By enforcing stringent regulations, the building code helps minimize potential damage from natural disasters, such as earthquakes, floods, and storms. In addition, it promotes the use of resilient building materials and practices, ensuring that new structures are better equipped to withstand hazardous events. This proactive approach not only protects property and lives but also contributes to the overall resilience of the community.	Yes	2009	Unknown
Flood Insurance Rate Maps	Yes	N/A	Yes	2023	N/A
Floodplain Ordinance	Yes	Yes	Yes	2020	N/A
Subdivision Ordinance	Yes	Hazardous mitigation is implemented in the subdivision ordinance and Natural Features Protection (NFP) guidelines through stringent	Unknown	2024	This is a slow

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
		regulations and guidelines that aim to minimize risks associated with natural hazards. These include provisions for avoiding development in floodplains, steep slopes, and other vulnerable areas prone to landslides, wildfires, and other natural disasters. By enforcing these measures, the ordinances and guidelines ensure that new developments are designed to enhance community safety, protect natural resources, and promote sustainable development practices.			growth City and requires updates on an as needed.
Zoning Ordinance	Yes	Yes	Yes	2006	Unknown
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	Yes	Sensitive lands (landslide) The hazard mitigation plan restricts the building of structures over areas prone to landslides, aiming to mitigate risks associated with building in hazardous zones. Sensitive lands are geologically fragile areas susceptible to slope instability and landslide events. This designation is based on rigorous assessments that integrate scientific data, hazard mapping, and community feedback to pinpoint areas of heightened vulnerability to landslides. By limiting construction in landslide-prone areas, the plan proactively prevents the development of structures in high-risk zones. This not only safeguards human safety and property but also protects the stability and resilience of these critical landscapes. It reduces the potential for damage and disruption caused by landslides, thereby enhancing community resilience and minimizing the need for costly recovery efforts. Furthermore, the plan encourages alternative land uses that are compatible with the geological characteristics and hazard potential	Unknown	2007	As needed

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
		for landslide-prone areas. This may include recreational spaces, green infrastructure, or managed natural habitats that promote ecological health and reduce exposure to landslide risks. Public education and outreach are pivotal for the plan's implementation. By raising awareness about risks of landslides and advocating for compliance with land use regulations, the plan engages stakeholders in efforts to safeguard natural resources and promote sustainable development practices. In summary, by restricting construction over landslide-prone areas and promoting alternative uses, the hazard mitigation plan effectively minimizes hazards associated with development in vulnerable zones. This proactive approach supports community safety, preserves natural landscapes, and fosters a resilient urban environment for the benefit of current and future generations.			
Acquisition of Land for Open Space and Public Recreation Use	Yes	The open space zone is specifically intended to encourage the preservation of a natural environment in an otherwise urban setting; to hold for future generations open space in which plants and animals can be protected and studied; to prevent the erection of unnecessary buildings on floodplains, severe slopes, fault lines, and rockslides; to provide suitable areas for recreation and relaxation and to alleviate stream pollution.	Yes	1993	Unknown
Prohibition of Building in At-Risk Areas	Yes	Prohibiting building in at-risk areas, especially sensitive lands, is a fundamental strategy in hazard mitigation planning aimed at reducing vulnerability to natural disasters and preserving environmental integrity. Sensitive lands are identified based on thorough assessments that consider geological, environmental, and hazard factors. These areas are often prone to significant risks, such as landslides, floods,	Yes	2007	As needed

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
		wildfires, seismic events, and erosion. Building in these zones can amplify hazards and exacerbate their impact, posing threats to human safety, infrastructure, and natural ecosystems. By prohibiting construction in sensitive lands, hazard mitigation plans prioritize safety and resilience. This proactive approach prevents exposure to foreseeable risks, minimizing potential loss of life and property damage. For example, avoiding development in floodplains reduces the risk of inundation during heavy rainfall, protecting both residents and their homes from flood-related disasters. Furthermore, preserving sensitive lands helps maintain the ecological balance and functionality of natural landscapes. These areas often play crucial roles in biodiversity conservation, water regulation, and soil stability. They may also serve as habitats for endangered species or contribute to local climate regulation and air quality improvement. Avoiding construction in these zones preserves these critical ecosystem services, ensuring long-term environmental health and sustainability. Prohibiting building in at-risk areas requires collaboration among government agencies, urban planners, developers, and community stakeholders. It involves enacting and enforcing zoning ordinances, building codes, and land use regulations that designate sensitive lands as protected areas. Public education campaigns and outreach efforts also are essential to raise awareness about the rationale for these restrictions and foster community support for hazard mitigation measures. In summary, by prohibiting building in at-risk areas, especially sensitive lands, hazard mitigation strategies enhance community safety, protect natural resources, and promote sustainable development. This approach ensures that development patterns are aligned with environmental resilience, reducing vulnerability to			

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
		natural hazards and contributing to the overall well-being of both human populations and the ecosystems on which they depend.			

Table 222: Regulations and Ordinances of the City of West Haven

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	Yes,2021 IBC,* 2021 IRC, 2021 IFC	Yes	Yes	Unknown	Unknown
Flood Insurance Rate Maps	No	N/A	N/A	N/A	N/A
Floodplain Ordinance	Yes	Yes	Yes	1992	Unknown
Subdivision Ordinance	Yes	Yes	Yes	2023	
Zoning Ordinance	Yes	Yes	Yes	Always in some form of review	
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	No	N/A	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	Yes	No	Yes	1992	2025
Prohibition of Building in At-Risk Areas	No	N/A	N/A	N/A	N/A
Other? (Describe)					

Note: IBC = International Building Code, IFC = International Fire Code, IRC = International Residential Code.

Table 223: Regulations and Ordinances of Plain City

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	Yes; international building code (IBC), as modified by chapter 11 of the supplement to the international building code, promulgated by the International Code Council, and amendments thereto as adopted under the Utah administrative code (2021 International Building Code), together with standards incorporated into the IBC by reference, including, but not limited to, the international energy conservation code (IECC) promulgated by the International Code Council and the international residential code 1 (IRC) promulgated by the International Code Council.	Yes	Yes	2003	Unknown
Flood Insurance Rate Maps	Yes	Yes	Yes	2023	Unknown
Floodplain Ordinance	Yes	Yes	Yes	2023	
Subdivision Ordinance	Yes	Yes	Yes	2011	Updating

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
					currently
Zoning Ordinance	Yes	Yes	Yes	Updating currently	
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	Yes	Yes	Director/ Engineering	Unknown	Unknown
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	No	N/A	N/A	N/A	N/A
Other? (Describe)					

Table 224: Regulations and Ordinances of the Hooper Water Improvement District

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	N/A	N/A	N/A	N/A	N/A

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Flood Insurance Rate Maps	N/A	N/A	N/A	N/A	N/A
Floodplain Ordinance	N/A	N/A	N/A	N/A	N/A
Subdivision Ordinance	N/A	N/A	N/A	N/A	N/A
Zoning Ordinance	N/A	N/A	N/A	N/A	N/A
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	N/A	N/A	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	N/A	N/A	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	N/A	N/A	N/A	N/A	N/A
Other? (Describe)					

Table 225: Regulations and Ordinances of the Pineview Water System

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	No	N/A	N/A	N/A	N/A

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Flood Insurance Rate Maps	No	N/A	N/A	N/A	N/A
Floodplain Ordinance	No	N/A	N/A	N/A	N/A
Subdivision Ordinance	No	N/A	N/A	N/A	N/A
Zoning Ordinance	No	N/A	N/A	N/A	N/A
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	No	N/A	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	No	N/A	N/A	N/A	N/A
Other? (Describe)					

Table 226: Regulations and Ordinances of the Roy Water Conservancy District

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	No	N/A	N/A	N/A	N/A

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Flood Insurance Rate Maps	No	N/A	N/A	N/A	N/A
Floodplain Ordinance	No	N/A	N/A	N/A	N/A
Subdivision Ordinance	No	N/A	N/A	N/A	N/A
Zoning Ordinance	No	N/A	N/A	N/A	N/A
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	No	N/A	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	No	N/A	N/A	N/A	N/A
Other? (Describe)					

Table 227: Regulations and Ordinances of Taylor-West Weber Water District

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	Yes; Utah Code Annotated, 1953, as amended (currently 2021 International Building Code)	We have a cross connection resolution.	Yes	It was updated in July of 2024. It is only updated as needed	Yes
Flood Insurance Rate Maps	No	N/A	N/A	N/A	N/A
Floodplain Ordinance	No	N/A	N/A	N/A	N/A
Subdivision Ordinance	No	N/A	N/A	N/A	N/A
Zoning Ordinance	No	N/A	N/A	N/A	N/A
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	No	N/A	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	No	N/A	N/A	N/A	N/A

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Other? (Describe)					

Table 228: Regulations and Ordinances of Weber Morgan Health Department

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	Yes; 2021 International Building Code	Yes	Yes	Every 5 years	
Flood Insurance Rate Maps	No	N/A	N/A	N/A	N/A
Floodplain Ordinance	No	N/A	N/A	N/A	N/A
Subdivision Ordinance	No	N/A	N/A	N/A	N/A
Zoning Ordinance	No	N/A	N/A	N/A	N/A
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	No	N/A	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A	N/A	N/A

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Prohibition of Building in At-Risk Areas	No	N/A	N/A	N/A	N/A
Other? (Describe)					

Table 229: Regulations and Ordinances of the West Warren–Warren Water Improvement District

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	No	N/A	N/A	N/A	N/A
Flood Insurance Rate Maps	No	N/A	N/A	N/A	N/A
Floodplain Ordinance	No	N/A	N/A	N/A	N/A
Subdivision Ordinance	No	N/A	N/A	N/A	N/A
Zoning Ordinance	No	N/A	N/A	N/A	N/A
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	No	N/A	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A	N/A	N/A

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Prohibition of Building in At-Risk Areas	No	N/A	N/A	N/A	N/A
Other? (Describe)					

Table 230: Regulations and Ordinances of the Weber School District

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	No. State and local codes apply.	N/A	N/A	N/A	N/A
Flood Insurance Rate Maps	No	N/A	N/A	N/A	N/A
Floodplain Ordinance	No	N/A	N/A	N/A	N/A
Subdivision Ordinance	No	N/A	N/A	N/A	N/A
Zoning Ordinance	No	N/A	N/A	N/A	N/A
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	No	N/A	N/A	N/A	N/A
Acquisition of Land for Open	No	N/A	N/A	N/A	N/A

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Space and Public Recreation Use					
Prohibition of Building in At-Risk Areas	No	N/A	N/A	N/A	N/A
Other? (Describe)					

Table 231 Regulations and Ordinances of the Central Weber Sewer Improvement District

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	No	N/A	N/A	N/A	N/A
Flood Insurance Rate Maps	No – not used	N/A	N/A	N/A	N/A
Floodplain Ordinance	No	N/A	N/A	N/A	N/A
Subdivision Ordinance	No	N/A	N/A	N/A	N/A
Zoning Ordinance	No	N/A	N/A	N/A	N/A
Natural Hazard Specific Ordinance	No	N/A	N/A	N/A	N/A

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
(Stormwater, Steep Slope, Wildfire)					
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	No	N/A	N/A	N/A	N/A
Other? (Describe)					

Table 232: Regulations and Ordinances of the Weber Fire District

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	No	N/A	N/A	N/A	N/A
Flood Insurance Rate Maps	No	N/A	N/A	N/A	N/A
Floodplain Ordinance	No	N/A	N/A	N/A	N/A
Subdivision Ordinance	No	N/A	N/A	N/A	N/A

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Zoning Ordinance	No	N/A	N/A	N/A	N/A
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	No	N/A	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	No	N/A	N/A	N/A	N/A
Other? (Describe)					

Table 233: Regulations and Ordinances of the North View Fire District

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Building Code	Yes; 2021 International Building Code	Yes	Yes	Adopted the 2021 building codes.	Will adopt the 2024 codes when they are released.
Flood Insurance Rate Maps	No	N/A	N/A	N/A	N/A

Regulation/ Ordinance	Do you have this?	Does it effectively reduce hazard impacts?	Is it adequately administered and enforced?	When was it last updated?	When is the next update?
Floodplain Ordinance	No	N/A	N/A	N/A	N/A
Subdivision Ordinance	No	N/A	N/A	N/A	N/A
Zoning Ordinance	No	N/A	N/A	N/A	N/A
Natural Hazard Specific Ordinance (Stormwater, Steep Slope, Wildfire)	No	N/A	N/A	N/A	N/A
Acquisition of Land for Open Space and Public Recreation Use	No	N/A	N/A	N/A	N/A
Prohibition of Building in At-Risk Areas	No	N/A	N/A	N/A	N/A
Other? (Describe)					

Administrative and Technical Capabilities

Legal, regulatory, and fiscal capabilities provide the backbone for successfully developing a mitigation strategy. However, without appropriate personnel, the strategy may not be implemented. Administrative and technical capabilities focus on the availability of personnel resources responsible for implementing all the facets of hazard mitigation. These resources include technical experts, such as engineers and scientists, and personnel that may be found in multiple departments, such as grant writers.

Table 234: Administrative Capabilities of Weber County

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	Yes	Yes	General Training.	The department director is trained, and the various departments (in multiple building locations) have varied amounts of training. Training is provided through basic Emergency Operations Plan (EOP) training, which lists the hazards and preparation efforts.
Civil Engineer	Yes	Yes	Yes	The Engineer is very involved in being trained on hazards and the County's mitigation efforts.
Community Planner	Yes	Yes	Yes.	The training isn't as extensive as it could be.
Emergency Manager	Yes	Yes	Yes	The Emergency Management Department received training on both hazards and mitigation.
Floodplain Administrator	Yes	Yes	Unknown	The engineer is the County's Floodplain Manager.
GIS Coordinator	Yes	Unknown	Unknown	GIS is very involved with helping EM with mapping requests that often are directly related to emergency planning and preparedness
Planning Commission	Yes	Unknown	Unknown	Unknown

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Yes	Yes, but interest in the Community Emergency Response Team (CERT) has declined substantially in the last decade. Last year, however, there were full classes due to an uptick in interest. How long that will continue is always uncertain.	Yes, more on hazards and preparedness, less on mitigation except those efforts associated with CERT.	Yes, we train as we can and they receive opportunities to learn on mitigation in those trainings on a basic level. They are not involved in the county's mitigation projects as that is not something we can advocate for based on their numbers and expertise. Their level of expertise is not consistent with that needed for actual project identification or implementation.
Voluntary Agencies Active in Disasters (VOAD)	Yes	Yes	Some are, based on their experience and their skill base.	County personnel attend quarterly VOAD meetings and understand their role in response and lessons learned from their deployments.
Other? (Please describe)	Yes	Strong reliance on the Church of Jesus Christ of Latter-Day Saints; less for other denominations. The County	Some have a good background on preparedness and hazards, less on mitigation. Their	A monthly Faith Based Emergency Preparedness Meeting covers various topics. Hazards are always mentioned, and there is some treatment of mitigation. Some County personnel perform indirect mitigation, such as assisting with preparedness efforts in neighborhoods. In and the response to flooding in Spring 2023, they assisted with

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
		continues outreach efforts with others and hopes they will participate.	awareness is measured more through outreach and trainings on preparedness.	sandbagging and did a substantial amount of filling bags and placing them for the months of March, April and May.

Table 235: Administrative Capabilities of Farr West City

Administrative Capability	Do you have this? (Yes/No)	Is staffing adequate?	Is staff trained on hazards and mitigation?	Does or could this help implement mitigation measures? If yes, describe.
Chief Building Official	Yes	Yes	Yes	Unknown
Civil Engineer	Yes	Yes	Yes	Unknown
Community Planner	Yes	Yes	Unknown	Unknown
Emergency Manager	Yes	Yes	In Progress	Unknown
Floodplain Administrator	Unknown	Unknown	Unknown	Unknown

Administrative Capability	Do you have this? (Yes/No)	Is staffing adequate?	Is staff trained on hazards and mitigation?	Does or could this help implement mitigation measures? If yes, describe.
GIS Coordinator	Unknown	Unknown	Unknown	Unknown
Planning Commission	Yes	Yes	Yes	NLT 4th quarter of 2024
Fire Safe Council	No	N/A	N/A	N/A
CERT (Community Emergency Response Team)	Yes	Yes	Yes	In Process, NLT than 4th quarter of 2024
Active VOAD (Voluntary Agencies Active in Disasters)	No	N/A	N/A	N/A
Other? (Please describe)				

Table 236: Administrative Capabilities of the City of Harrisville

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	Yes	Yes, contracted third party.	Yes	Training building officials on mitigation and what is needed can help ensure new development is up to code on new mitigation methods.
Civil Engineer	Yes	Yes, contracted third party.	Yes	The Civil Engineer helps with planning and development. This position has been used to help new developments mitigate flooding risks.
Community Planner	Yes	No	Yes, more training would be useful for this position.	This position can help by not allowing new development in at-risk areas.
Emergency Manager	Yes	No	Yes, more training would be useful for this position.	The Emergency Manager can work with other departments to create plans and coordinate responses in emergencies. They can also be a resource for the community to train residents in mitigation.
Floodplain Administrator	Yes	No	Yes, more training would be useful for this position.	The Floodplain Administrator can make sure new development follows all applicable codes and laws. This can mitigate future problems by not allowing development in floodplains or areas

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
				prone to danger.
GIS Coordinator	No	N/A	N/A	N/A
Planning Commission	Yes	Yes	No. It would help if they had training on mitigation measures	It makes recommendations to the City Council for approval. If they are trained to look for mitigation issues, it could help catch any potential issues the City staff miss.
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Yes	No	Yes	Unknown
Voluntary Agencies Active in Disasters (VOAD)	No	N/A	N/A	N/A
Other? (Describe)				

Table 237: Administrative Capabilities of the City of Hooper

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	No	N/A	N/A	N/A
Civil Engineer	No	N/A	N/A	N/A

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Community Planner	No	N/A	N/A	N/A
Emergency Manager	Yes	No	In process	Yes. City Planning and Certification
Floodplain Administrator	No	N/A	N/A	N/A
GIS Coordinator	No	N/A	N/A	N/A
Planning Commission	Yes	Yes	No	Unknown
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Yes	No	Yes	Yes. Trained response team
Voluntary Agencies Active in Disasters (VOAD)	No	N/A	N/A	N/A
Other? (Describe)				

Table 238: Administrative Capabilities of the City of Huntsville

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	Sunrise Engineering	Yes	Yes	Enforces building codes
Civil Engineer	Yes	Yes	Yes	Provides engineering advice for future

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
				mitigation projects
Community Planner	No	N/A	N/A	N/A
Emergency Manager	Yes	Yes	Yes	Helps prepare the town for emergency situations
Floodplain Administrator	Town Planning Commission	Yes	Somewhat	Limits building in floodplains
GIS Coordinator	Yes	Yes	Yes	Helps find underground utilities.
Planning Commission	Yes	Yes	Somewhat	Considers pre-mitigation ideas in zoning and ordinances.
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Yes	Yes	Yes	Yes
Voluntary Agencies Active in Disasters (VOAD)	No	N/A	N/A	N/A
Other? (Describe)				

Table 239: Administrative Capabilities of the City of Marriott–Slaterville

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	Yes	No	Yes	Enforces IBC*
Civil Engineer	Yes	No	No	Ensures that City infrastructure is adequate.
Community Planner	Yes	Yes	Yes	Guides development to less sensitive areas.
Emergency Manager	Yes	No	No	Helps with preparation and response.
Floodplain Administrator	Yes	No	No	Reduces inundation risk.
GIS Coordinator	No	N/A	N/A	Aids in proper mapping and documentation
Planning Commission	Yes	Yes	No	Ensures compliance with codes.
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	No	N/A	N/A	Aids in basic response
Voluntary Agencies Active in Disasters (VOAD)	Yes	No	No	Aids in basic response.
Other? (Describe)				

**Note*: IBC = International Building Code.

Table 240: Administrative Capabilities of the City of North Ogden

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	Yes	Yes	Yes	Subject matter expert (building code)
Civil Engineer	Yes	Yes	Yes	Subject matter expert (soils)
Community Planner	Yes	Yes	Yes	Subject matter expert (zoning and code)
Emergency Manager	Yes	Yes	Yes	Provides support in planning and goals
Floodplain Administrator	Yes	Yes	Yes	Subject matter expert (floodplains)
GIS Coordinator	No	N/A	N/A	N/A
Planning Commission	Yes	Yes	Yes	Makes approvals according to ordinances
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Yes	Yes	Yes	Helps with community outreach.
Voluntary Agencies Active in Disasters (VOAD)	Yes	Yes	Yes	Helps with community outreach.
Other? (Describe)				

Table 241: Administrative Capabilities of the City of Ogden

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	Yes	No	Yes	Helps by enforcing codes and reducing risks to the community.
Civil Engineer	Yes	Yes	Yes	Civil engineers play a vital role in designing and constructing infrastructure that can withstand natural disasters. Their responsibilities include: • **Infrastructure Design**: Ensuring that roads, bridges, buildings, and other critical infrastructure are designed to resist earthquakes, floods, and other hazards. • **Stormwater Management**: Implementing effective stormwater management systems to prevent flooding and water pollution. • **Risk Assessments**: Conducting risk assessments to identify vulnerabilities in existing infrastructure and recommending upgrades or replacement. • **Compliance**: Ensuring that all projects comply with local, state, and federal regulations and building codes aimed at reducing hazard impacts. • **Emergency Response Planning**: Collaborating with emergency management teams to develop and implement response plans that include robust infrastructure support.
Community Planner	Yes	Yes	Yes	Supports mitigation efforts and understanding current risk the City is facing when developing in certain areas.

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Emergency Manager	Yes	No	Yes	Creates and updates plans that address current and future risks.
Floodplain Administrator	Yes	Yes	Yes	Plays a crucial role in implementing flood mitigation measures; responsibilities include: • **Flood Risk Management**: Assessing and mapping flood hazards to identify high-risk areas and guide development away from these zones. • **Regulation Enforcement**: Ensuring compliance with local, state, and federal floodplain management regulations to reduce flood risks. • **Permitting**: Reviewing and approving development permits in flood-prone areas to ensure that they meet all safety and mitigation standards. • **Public Education**: Educating the community about flood risks and mitigation practices to enhance public awareness and preparedness. • **Coordination**: Collaborating with other City departments, state agencies, and federal entities like FEMA to align flood mitigation efforts and ensure comprehensive risk management. • **Mitigation Planning**: Developing and updating floodplain management plans, integrating them with broader hazard mitigation plans to enhance community resilience.
GIS Coordinator	Yes	Yes	Yes	Provides mapping solutions for risk and creates dashboards to

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
				track damage and resources during disasters.
Planning Commission	No	N/A	N/A	N/A
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Yes	No	Yes	Helps the community during a disaster by having basic first aid skills and emergency response.
Voluntary Agencies Active in Disasters (VOAD)	Yes	Yes	Yes	Help when called upon to provide service in time of disaster or with mitigation projects throughout the City.
Other? (Describe)				

Table 242: Administrative Capabilities of the Ogden City School District

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	Yes	Yes	Yes	Staff are trained to identify hazards/risks and implement mitigation.
Civil Engineer	No	N/A	N/A	N/A
Community Planner	No	N/A	N/A	N/A
Emergency Manager	Yes	Yes	Yes	Staff are trained to identify hazards/risks and implement mitigation.
Floodplain Administrator	No	N/A	N/A	N/A
GIS Coordinator	No	N/A	N/A	N/A
Planning Commission	No	N/A	N/A	N/A
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	No	N/A	N/A	N/A
Voluntary Agencies Active in Disasters (VOAD)	No	N/A	N/A	N/A
Other? (Describe)				

Table 243: Administrative Capabilities of the City of Pleasant View

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	Yes	Yes	Yes	Unknown
Civil Engineer	Yes	Yes	No	Unknown
Community Planner	Yes	Yes	Yes	Unknown
Emergency Manager	Yes	Yes	Yes	Unknown
Floodplain Administrator	No	N/A	N/A	N/A
GIS Coordinator	Yes	Yes	No	Unknown
Planning Commission	Yes	Yes	No	Unknown
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Yes	Yes	Yes	Unknown
Voluntary Agencies Active in Disasters (VOAD)	No	N/A	N/A	N/A
Other? (Describe)				

Table 244: Administrative Capabilities of the City of Riverdale

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	Yes	No	Yes	Makes sure buildings meet codes for earthquakes and everyday fire prevention.
Civil Engineer	Yes	Contracted out	Unknown	Unknown
Community Planner	Yes	Yes	Yes	Proper planning to ensure development is out of hazard areas.
Emergency Manager	Yes	No	Yes	Maintains communications with the City and makes sure the Emergency Operation Plan is up to date.
Floodplain Administrator	No	N/A	N/A	N/A
GIS Coordinator	No	N/A	N/A	N/A
Planning Commission	Yes	Yes	No	Unknown
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Yes	Yes	Yes	Works with fire and police during events and for flood preparation
Voluntary Agencies Active in Disasters (VOAD)	Yes	Yes	Yes	The VOAD member is part of the City Emergency Management Team.

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Other? (Describe)				

Table 245: Administrative Capabilities of the City of Roy

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	Yes	Yes	No	Yes, it helps by enforcing codes and reducing risks to the community.
Civil Engineer	Yes – Third Party	Yes	No	Civil engineers play a vital role in designing and constructing infrastructure that can withstand natural disasters. Their responsibilities include: • **Infrastructure Design:** Ensuring that roads and bridges meet standards
Community Planner	Yes	No	No	Unknown
Emergency Manager	Yes	No	No	Creating and updating plans that address current risk and risk the city may face.
Floodplain Administrator	Yes	Yes	No	Mapping solutions for risk and creating dashboards to track damage and

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
				resources during disasters.
GIS Coordinator	Yes	Yes	No	Unknown
Planning Commission	Yes	Yes	No	Unknown
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	No	No		There was a CERT team in the community but support from citizens was lacking.
Voluntary Agencies Active in Disasters (VOAD)	No	No	N/A	N/A
Other? (Describe)				

Table 246: Administrative Capabilities of the City of South Ogden

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	No	N/A	N/A	N/A
Civil Engineer	No	N/A	N/A	N/A
Community Planner	No	N/A	N/A	N/A
Emergency Manager	Yes	No	Yes	Unknown

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Floodplain Administrator	No	N/A	N/A	N/A
GIS Coordinator	No	N/A	N/A	N/A
Planning Commission	Yes	Unknown	Unknown	Unknown
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Yes	No	Yes	Unknown
Voluntary Agencies Active in Disasters (VOAD)	Yes	Unknown	Unknown	Unknown
Other? (Describe)				

Table 247: Administrative Capabilities of the City of Uintah

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	Yes	Yes	Yes	Helps to see items that must be addressed so changes can be made
Civil Engineer	Yes	Yes	Yes	Helps to see items that must be addressed so changes can be made
Community	No	N/A	N/A	N/A

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Planner				
Emergency Manager	No	N/A	N/A	N/A
Floodplain Administrator	No	N/A	N/A	N/A
GIS Coordinator	No	N/A	N/A	N/A
Planning Commission	Yes	Yes	No	Unknown
Fire Safe Council	No	No	N/A	N/A
Community Emergency Response Team (CERT)	No	No	N/A	N/A
Voluntary Agencies Active in Disasters (VOAD)	No	No	N/A	N/A
Other? (Describe)				

Table 248: Administrative Capabilities of the City of Washington Terrace

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	Yes	Yes	Yes	Unknown
Civil Engineer	Yes	Yes	Unknown	Unknown

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Community Planner	Yes	Yes	Yes	Unknown
Emergency Manager	Yes	Yes	Yes	Unknown
Floodplain Administrator	No	N/A	N/A	
GIS Coordinator	Yes	Yes	No. Need to train GIS in this regard.	Unknown
Planning Commission	Yes	Yes	No. It would be good to train the planning commission; .many are new in their positions.	Unknown
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	No	No	No	This could be a good addition to the City's emergency management strategy.
Voluntary Agencies Active in Disasters (VOAD)	No	N/A	N/A	N/A
Other? (Describe)				

Table 249: Administrative Capabilities of the City of West Haven

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	Yes	Yes	Yes	Unknown
Civil Engineer	Yes	Yes	Yes	Unknown
Community Planner	Yes	Yes	No	N/A
Emergency Manager	Yes	Yes	Yes	Unknown
Floodplain Administrator	Yes	Yes	Yes	Unknown
GIS Coordinator	Yes	Yes	Unknown	Unknown
Planning Commission	Yes	Yes	No	Unknown
Fire Safe Council	Yes	Yes	Yes	Unknown
Community Emergency Response Team (CERT)	Yes	No	Yes	Unknown
Voluntary Agencies Active in Disasters (VOAD)	No	N/A	N/A	N/A
Other? (Describe)				

Table 250: Administrative Capabilities of Plain City

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	Yes	Yes	Unknown	Unknown
Civil Engineer	Yes	Yes	Unknown	Unknown
Community Planner	No	N/A	N/A	N/A
Emergency Manager	Yes	No	Unknown	Unknown
Floodplain Administrator	Yes	Yes	Unknown	Unknown
GIS Coordinator	No	N/A	N/A	N/A
Planning Commission	Yes	Yes	Unknown	Unknown
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Yes	Yes	Fire Department/ Weber County	Unknown
Voluntary Agencies Active in Disasters (VOAD)	No	N/A	N/A	N/A
Other? (Describe)				

Table 251: Administrative Capabilities of the Hooper Water Improvement District

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	No	N/A	N/A	N/A
Civil Engineer	Yes	Yes	Yes	Unknown
Community Planner	No	N/A	N/A	N/A
Emergency Manager	No	N/A	N/A	N/A
Floodplain Administrator	No	N/A	N/A	N/A
GIS Coordinator	Yes	No	No	No
Planning Commission	No	N/A	N/A	N/A
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	No	N/A	N/A	N/A
Voluntary Agencies Active in Disasters (VOAD)	No	N/A	N/A	N/A
Other? (Describe)				

Table 252: Administrative Capabilities of the Pineview Water System

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	No	N/A	N/A	N/A
Civil Engineer	Yes	Yes	No	Undetermined
Community Planner	No	N/A	N/A	N/A
Emergency Manager	No	N/A	N/A	N/A
Floodplain Administrator	No	N/A	N/A	N/A
GIS Coordinator	Yes	Yes	No	Unknown
Planning Commission	No	N/A	N/A	N/A
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	No	N/A	N/A	N/A
Voluntary Agencies Active in Disasters (VOAD)	No	N/A	N/A	N/A
Other? (Describe)				

Table 253: Administrative Capabilities of the Roy Water Conservancy District

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	No	N/A	N/A	N/A
Civil Engineer	No	N/A	N/A	N/A
Community Planner	No	N/A	N/A	N/A
Emergency Manager	No	N/A	N/A	N/A
Floodplain Administrator	No	N/A	N/A	N/A
GIS Coordinator	No	N/A	N/A	N/A
Planning Commission	No	N/A	N/A	N/A
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	No	N/A	N/A	N/A
Voluntary Agencies Active in Disasters (VOAD)	No	N/A	N/A	N/A
Other? (Describe)				

Table 254: Administrative Capabilities of Taylor West Weber Water District

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	No	N/A	N/A	N/A
Civil Engineer	No	N/A	N/A	N/A
Community Planner	No	N/A	N/A	N/A
Emergency Manager	Yes	Yes	Some	State and local entities could help
Floodplain Administrator	No	N/A	N/A	N/A
GIS Coordinator	Yes	Yes	Yes	Our coordinator can implement layers on our GIS map to help take quick actions in emergency situations
Planning Commission	No	N/A	N/A	N/A
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	No	No	No	Working with each area's CERT team can help us know who to contact to help us communicate in emergency situations. We can implement contact information into our emergency response plan
Voluntary Agencies Active in	No	N/A	N/A	N/A

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Disasters (VOAD)				
Other? (Describe)				

Table 255: Administrative Capabilities of the Weber Morgan Health Department

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	No	N/A	N/A	N/A
Civil Engineer	No	N/A	N/A	N/A
Community Planner	No	N/A	N/A	N/A
Emergency Manager	Yes	Yes	Yes	Unknown
Floodplain Administrator	No	N/A	N/A	N/A
GIS Coordinator	No	N/A	N/A	N/A
Planning Commission	No	N/A	N/A	N/A
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	No	N/A	N/A	N/A
Voluntary Agencies Active in	No	N/A	N/A	N/A

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Disasters (VOAD)				
Other? (Describe)				

Table 256: Administrative Capabilities of the Weber School District

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	Yes	Yes	Yes	Responsible for maintenance and operations of facilities
Civil Engineer	No	N/A	N/A	N/A
Community Planner	No	N/A	N/A	N/A
Emergency Manager	Yes	No	Yes	Responsible for safety and security
Floodplain Administrator	No	N/A	N/A	N/A
GIS Coordinator	Yes	Yes	No	Unknown
Planning Commission	No	N/A	N/A	N/A
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	No	N/A	N/A	N/A

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Voluntary Agencies Active in Disasters (VOAD)	No	N/A	N/A	N/A
Other? (Describe)	No			

Table 257: Administrative Capabilities of the West Warren–Warren Water Improvement District

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	No	N/A	N/A	N/A
Civil Engineer	No	N/A	N/A	N/A
Community Planner	No	N/A	N/A	N/A
Emergency Manager	Yes	Yes	Yes	Unknown
Floodplain Administrator	No	N/A	N/A	N/A
GIS Coordinator	No	N/A	N/A	N/A
Planning Commission	No	N/A	N/A	N/A
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	No	N/A	N/A	N/A

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Voluntary Agencies Active in Disasters (VOAD)	No	N/A	N/A	N/A
Other? (Describe)				

Table 258 Administrative Capabilities of the Central Weber Sewer Improvement District

Administrative Capability	Do you have this? (Yes/No)	Is staffing adequate?	Is staff trained on hazards and mitigation?	Does or could this help implement mitigation measures? If yes, describe.
Chief Building Official	No	N/A	N/A	N/A
Civil Engineer	Yes	Yes	Yes	Yes
Community Planner	No	N/A	N/A	N/A
Emergency Manager	No	N/A	N/A	N/A
Floodplain Administrator	No	N/A	N/A	N/A
GIS Coordinator	Yes	Yes	No	Yes

Administrative Capability	Do you have this? (Yes/No)	Is staffing adequate?	Is staff trained on hazards and mitigation?	Does or could this help implement mitigation measures? If yes, describe.
Planning Commission	No	N/A	N/A	N/A
Fire Safe Council	No	N/A	N/A	N/A
CERT (Community Emergency Response Team)	No	N/A	N/A	N/A
Active VOADs (Voluntary Agencies Active in Disasters)	No	N/A	N/A	N/A
Other? (Describe)				

Table 259: Administrative Capabilities of the Weber Fire District

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	No	N/A	N/A	N/A
Civil Engineer	No	N/A	N/A	N/A
Community	No	N/A	N/A	N/A

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Planner				
Emergency Manager	Yes	Yes	Yes	Unknown
Floodplain Administrator	No	N/A	N/A	N/A
GIS Coordinator	No	N/A	N/A	N/A
Planning Commission	No	N/A	N/A	N/A
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	Yes	Yes	Yes	Unknown
Voluntary Agencies Active in Disasters (VOAD)	No	N/A	N/A	N/A
Other? (Describe)				

Table 260: Administrative Capabilities of the North View Fire District

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Chief Building Official	Yes – Fire Marshal	Yes	Yes	Subject matter expert (fire codes)
Civil Engineer	No	N/A	N/A	N/A

Administrative Capability	Do you have this?	Is staffing adequate?	Are staff trained on hazards and mitigation?	How does this help implement mitigation measures?
Community Planner	No	N/A	N/A	N/A
Emergency Manager	No	N/A	N/A	N/A
Floodplain Administrator	No	N/A	N/A	N/A
GIS Coordinator	No	N/A	N/A	N/A
Planning Commission	No	N/A	N/A	N/A
Fire Safe Council	No	N/A	N/A	N/A
Community Emergency Response Team (CERT)	No	N/A	N/A	N/A
Voluntary Agencies Active in Disasters (VOAD)	No	N/A	N/A	N/A
Other? (Describe)	N/A			

Table 261: Technical Capabilities of Weber County

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	Yes	Yes	Through Emergency Management generally, in coordination with the engineering department.
Hazard Data	Yes	Yes	Hazard Vulnerability

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
and Information			Analysis (HVA) and Threat Hazard Identification and Risk Assessment (THIRA) are part of planning and plan reviews and updates.
GIS	Yes	Yes	To increase mapping capabilities and planning abilities.
Mutual Aid Agreements	Yes	Yes	The state of Utah has a mutual aid law.
Other? (Describe)			

Table 262: Technical Capabilities of Farr West City

Technical Capability	Do you have this capability? (Yes/No)	How has the capability been used to assess/mitigate risk in the past? (Answer or N/A)	How can the capability be used to assess/mitigate risk in the future?
Mitigation Grant Writing	Yes	Unknown	The use of grant(s) funding could be used to plan and disseminate information to the public. It could be used to pay for volunteer expenses, thus enticing more volunteers. It could be used to procure materials to be used for hazard mitigation efforts.
Hazard Data and Information	No	N/A	N/A
GIS	No	N/A	N/A

Technical Capability	Do you have this capability? (Yes/No)	How has the capability been used to assess/mitigate risk in the past? (Answer or N/A)	How can the capability be used to assess/mitigate risk in the future?
Mutual Aid Agreements	Yes	Fire, Sheriff, Local Community, Local Churches	Intercommunications, any entity can see and report. The Fire and Sheriff departments can train and educate local communities. Local churches can assist in mitigation (physical efforts) and support those executing the efforts
Other? (Please describe)			

Table 263: Technical Capabilities of the City of Harrisville

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	Yes	To apply for BRIC grants, road safety grants, and others.	When the PDM plan is complete, the City can apply for more BRIC grants.
Hazard Data and Information	No	N/A	N/A
GIS	No	N/A	N/A
Mutual Aid Agreements	Yes	Working with neighboring jurisdictions to plan what flows in streams that run through the City. Sharing information on restrictions for detention basins and piped canals. Creating plans with neighboring cities to know how much water can be released without causing	Can be used to help neighboring municipalities prepare for snowpack runoff; cleaning canals, waterways, and detention basins; and for using equipment and expertise.

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
		flooding. Also used by neighboring municipalities for dredging and de-silting canals and detention basins so they can hold back water and avoid flooding cities in lower elevations.	
Other? (Describe)			

Table 264: Technical Capabilities of the City of Hooper

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	Yes	Applied for large water pump to help with flooding problems	Staff are experienced in grant writing.
Hazard Data and Information	No	N/A	N/A
GIS	No	N/A	N/A
Mutual Aid Agreements	No	N/A	N/A
Other? (Describe)			

Table 265: Technical Capabilities of the City of Huntsville

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation	Yes	Received grant for Water	Finance further mitigation

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Grant Writing		Treatment Plant backup generator	projects.
Hazard Data and Information	Yes	Help in making emergency response plans	Same
GIS	Yes	Unknown	Will be used for repairs in emergency situations.
Mutual Aid Agreements	No	N/A	N/A
Other? (Describe)			

Table 266: Technical Capabilities of the City of Marriott–Slaterville

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	Yes	Grant monies acquired to purchase development rights and open space.	Continue to protect known hazard areas from encroachment.
Hazard Data and Information	No	N/A	N/A
GIS	Yes	Has not yet, as system is being set up.	For recording notes on specific structures/areas.
Mutual Aid Agreements	Yes	Cooperative maintenance of waterways.	Interlocal assistance in the event of an emergency.
Other? (Describe)			

Table 267: Technical Capabilities of the City of North Ogden

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	Yes	Unknown	Searching for and applying for funding
Hazard Data and Information	Yes	Hazard Vulnerability Analysis (HVA)	Maintaining annual HVA
GIS	Yes	Unknown	Mapping hazard risks/ HAZUS
Mutual Aid Agreements	Yes	Unknown	Activate when necessary for mitigation assistance
Other? (Describe)			

Table 268: Technical Capabilities of the City of Ogden

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	Yes	Many mitigation grants have helped to complete projects to make the City more resilient.	Apply for more funding for future projects.
Hazard Data and Information	No	N/A	N/A
GIS	Yes	Helped with maps and dashboards to track damage and map areas of concern.	Use in all pre-disaster planning and mitigation work
Mutual Aid Agreements	Yes	Can be used when resources are exhausted or when more help in certain areas is needed (e.g., equipment and personnel)	Agreements must be made prior to disaster or emergency events so plans are in place in time of need.

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Other? (Describe)			

Table 269: Technical Capabilities of the Ogden City School District

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	No	N/A	N/A
Hazard Data and Information	No	N/A	N/A
GIS	No	N/A	N/A
Mutual Aid Agreements	Yes	Unknown	Have agreements for providing shelter, transportation, and distribution of medications to support community response and recovery in a disaster.
Other? (Describe)			

Table 270: Technical Capabilities of the City of Pleasant View

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	Yes	Unknown	Understanding how to secure funding support and different items of eligibility.

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Hazard Data and Information	Yes	Helped Public Works navigate various challenges and issues with local topography	Unknown
GIS	Yes	Helped identify various issues in understanding the precise locations of municipal utilities.	Can help identify the precise locations of municipal utilities.
Mutual Aid Agreements	Yes	Unknown	Have agreements with other entities and communities to provide additional aid when needed.
Other? (Describe)			

Table 271: Technical Capabilities of the City of Riverdale

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	No	N/A	N/A
Hazard Data and Information	No	N/A	N/A
GIS	No	N/A	N/A
Mutual Aid Agreements	Yes	Ensures adequate response from the County and surrounding counties during a disaster	Response to help mitigate hazards and threats to the public
Other? (Describe)			

Table 272: Technical Capabilities of the City of Roy

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	No – each department does grant writing across the city	N/A	Help get more funding for future projects. The City is challenged with the lack of funding. Grant funding is critical to improve infrastructure.
Hazard Data and Information	Yes	Severe storms were assessed.	In the future, data could be gathered to support mitigation grants.
GIS	Yes	Helped with maps and dashboards to track damage and map areas of concern.	Will be used in all pre disaster planning and mitigation work
Mutual Aid Agreements	Yes	Can be used when resources are exhausted or when more help in certain areas is needed. (e.g., equipment, personnel).	Agreements must be made prior to disaster or emergency events so plans are in place in time of need.
Other? (Describe)			

Table 273: Technical Capabilities of the City of South Ogden

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	Yes	Unknown	Yes
Hazard Data and Information	Yes	Unknown	Yes
GIS	No	N/A	N/A

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mutual Aid Agreements	Yes	Unknown	Unknown
Other? (Describe)			

Table 274: Technical Capabilities of the City of Uintah

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	No	N/A	N/A
Hazard Data and Information	No	N/A	N/A
GIS	No	N/A	N/A
Mutual Aid Agreements	Yes	Not sure that it has been used to mitigate risk in the past.	Can work together on projects to mitigate risks.
Other? (Describe)			

Table 275: Technical Capabilities of the City of Washington Terrace

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	Yes, to a point	Yes	Could use some help in applying for mitigation grants.
Hazard Data and Information	No	N/A	N/A

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
GIS	Yes	Yes	Same employee W
Mutual Aid Agreements	Yes	Yes	To coordinate with surrounding communities to support one another in fire restrictions and general mutual aid.
Other? (Describe)			

Table 276: Technical Capabilities of the City of West Haven

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	Yes	Unknown	Apply for grants
Hazard Data and Information	No	N/A	N/A
GIS	No, Not in house	N/A	N/A
Mutual Aid Agreements	Yes	Yes. With Weber Fire District and Weber Sheriff.	Unknown
Other? (Describe)			

Table 277: Technical Capabilities of Plain City

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	Yes	Unknown	Unknown
Hazard Data and Information	No	N/A	N/A
GIS	Yes	Unknown	Unknown
Mutual Aid Agreements	Yes	Unknown	Unknown
Other? (Describe)			

Table 278: Technical Capabilities of the Hooper Water Improvement District

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	Yes	Unknown	Unknown
Hazard Data and Information	Yes	Unknown	Unknown
GIS	Yes	Unknown	Unknown
Mutual Aid Agreements	Yes	Unknown	Unknown
Other? (Describe)			

Table 279: Technical Capabilities of the Pineview Water System

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	Yes	Unknown	Unknown
Hazard Data and Information	No	N/A	N/A
GIS	Yes	Unknown	Elevation & Proximity
Mutual Aid Agreements	No	N/A	N/A
Other? (Describe)			

Table 280: Technical Capabilities of the Roy Water Conservancy District

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	No	N/A	N/A
Hazard Data and Information	No	N/A	N/A
GIS	No	N/A	N/A
Mutual Aid Agreements	No	N/A	N/A
Other? (Describe)			

Table 281: Technical Capabilities of Taylor West Weber Water District

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	No	N/A	N/A
Hazard Data and Information	No	N/A	N/A
GIS	Yes	It has not been used in the past as it is new to our system.	GIS capabilities can help us locate important valves and infrastructure to prevent water loss in emergencies and help us determine methods to mitigate consumers' downtime in emergencies
Mutual Aid Agreements	No	N/A	N/A
Other? Emergency Management Plan	Yes	Immediate actions can take place to mitigate water loss and reduce water outage time to consumers	This plan can mitigate long outages and pollution to water if/or when pipes break from hazards such as earthquakes

Table 282: Technical Capabilities of the Weber Morgan Health Department

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	No	N/A	N/A
Hazard Data and Information	Yes	WMHD has access to the State and County GIS and systems for data updates and information to support incident management.	WMHD has referred to the data to identify areas of interest to do inspections and further mitigate for the area.

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
GIS	No	N/A	N/A
Mutual Aid Agreements	YES	Data sharing to identify areas of impact, EPI MOUs to discuss issues, MOUs with facilities and response agencies, etc.	All MOUs are a preparedness precaution to ensure WMHD mitigates the impact of the incident.
Other? (Describe)			

Table 283: Technical Capabilities of the Weber School District

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	No	N/A	N/A
Hazard Data and Information	No	N/A	N/A
GIS	Yes	Unknown	Unknown
Mutual Aid Agreements	No	N/A	N/A
Other? (Describe)			

Table 284: Technical Capabilities of the West Warren–Warren Water Improvement District

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	No	N/A	N/A

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Hazard Data and Information	No	N/A	N/A
GIS	No	N/A	N/A
Mutual Aid Agreements	No	N/A	N/A
Other? (Describe)			

Table 285 Technical Capabilities of the Central Weber Sewer Improvement District

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	No	N/A	N/A
Hazard Data and Information	No	N/A	N/A
GIS	Yes	It has not been assessed. GIS was only recently implemented.	Potentially map sites that are at-risk. Utilize these maps in mitigation grants.
Mutual Aid Agreements	No	N/A	N/A
Other? (Please describe)			

Table 286: Technical Capabilities of the Weber Fire District

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	Yes	Unknown	Unknown
Hazard Data and Information	No	N/A	N/A
GIS	No	N/A	N/A
Mutual Aid Agreements	Yes	Unknown	Unknown
Other? (Describe)			

Table 287: Technical Capabilities of the North View Fire District

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
Mitigation Grant Writing	Yes	Unknown	To use as a revenue source for additional planning and mitigating the risk of wildfires.
Hazard Data and Information	No	N/A	N/A
GIS	No	N/A	N/A
Mutual Aid Agreements	Yes	Unknown	Have agreements with other fire departments to request additional aid when needed.
Other? (Describe)	Automatic Aid	Unknown	Each fire department in the County has automatic

Technical Capability	Do you have this?	How has it been used to assess/mitigate risk?	How can it be used to assess/mitigate risk in the future?
			aid agreements with other fire departments to respond during an emergency.

Financial Capabilities

Determining current and/or potential funding sources is an important step in the mitigation planning process. By exploring, identifying, and evaluating alternative sources now, planning partners are positioned to select and implement actions which are financially obtainable.

FEMA's Hazard Mitigation Assistance (HMA) grants fund eligible mitigation measures to reduce future disaster losses. Eligible applicants include state agencies, local governments, special districts, federally recognized tribes, and private nonprofit organizations.

This Plan is written in accordance with federal guidelines to ensure that participants remain eligible for certain mitigation funds. Under the Code of Federal Regulations (CFR) Title 44, Part 201.6 (44 CFR §201.6), Local Mitigation Plans, local governments must have a FEMA-approved plan to apply for and/or receive hazard mitigation project grant funds for hazard mitigation programs, including the following:

- Hazard Mitigation Grant Program (HMGP)
- HMGP Post Fire Program (HMGP-PF)
- Building Resilient Infrastructure and Communities (BRIC)
- Flood Mitigation Assistance (FMA)
- Safeguarding Tomorrow Revolving Loan Fund Program

It is important to consider various funding streams. Mitigation actions can and should be funded through multiple avenues. Funding opportunities may include federal agencies; state, local, and tribal programs, as applicable; and private funding. Potential federal, state, and local funding opportunities are described in the following tables.

Table 288: Financial Capabilities of Weber County

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	For a seismic study and replacing a County parking structure	Yes	Yes
General Funds	Yes	For a flood diversion structure at 4700 W	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	Yes	For certain projects, but most of the funding has not come from HMGP in recent decade.	Yes	No
Building Resilient Infrastructure & Communities (BRIC)	Application by our inspections department was put in this year.	Similar, unincorporated has found other funding sources for the most part.	Possibly.	No
Flood Mitigation Assistance (FMA)	We sought funding in the 2023 flooding incident and Weber County was not on the FEMA declaration or the appeal. Instead, the State of Utah Division of Emergency Management	Not a source that can be predicted.	Possibly.	No.

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
	is assisting in funding from SB0003 for response costs and HB1001 for Recovery costs to assist since we were denied by FEMA (FEMA required flooding only to be in April and May and we started flooding in March and did not meet the threshold completely between May and June.			
Public Assistance Mitigation (PA Mitigation/ 406)	Do not think we have.	Not sure if it has been used in the past for declarations.	Not likely.	No.
Community Development Block Grant (CDBG)	Not that we are aware of.	Unknown.	Possibly.	No.
Natural Resources Conservation Services (NRCS) Programs	Yes	We used their funding in 2011 through 2013 in lower Weber River and now for the Utaba Dam	Yes.	No. We use our in kind resources for our federal grants.

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
		reconstruction.		
U.S. Army Corps (USACE) Programs	No	Unknown.	Not likely.	No.
Property, sales, income, or special purpose taxes	Yes	Yes. The county wide Storm Water tax used for storm water issues.	Yes.	Possibly.
Stormwater utility fee	Yes	To upgrade storm-water infrastructure	Yes	Yes
Fees for water, sewer, gas, or electric services	Yes	To upgrade storm-water infrastructure	Yes	Yes
Impact fees from new development and redevelopment	Yes	To establish flood/ stormwater drainage facilities	Yes	Yes
General obligation or special purpose bonds	Yes	No	Yes	Yes
Federally funded programs	Yes.	We used some Fire Mitigation Assistance Grant funding for the Uinta fire.	Yes.	No, we would have to use in-kind resources.
State-funded programs	Not that we can think of.	Not that we know of unless it would be the EMPG for like outreach but not straight out	Possibly.	No, would have to use in-kind.

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
		mitigation.		
Private sector or nonprofit programs	No.	Not sure	Possibly.	Not sure.

Table 289: Financial Capabilities: for Farr West City

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Unknown.	Unknown	Unknown	Unknown
General Funds	Yes	Unknown	Yes.	Yes.
Hazard Mitigation Grant Program (HMGP/404)	No.	Unknown	Yes.	No
Building Resilient Infrastructure & Communities (BRIC)	No	Unknown	Yes.	No
Flood Mitigation Assistance (FMA)	No	Unknown	Yes.	No
Public Assistance	No.	Unknown	Yes.	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Mitigation (PA Mitigation/ 406)				
Community Development Block Grant (CDBG)	Unknown.	Unknown	Yes.	No
Natural Resources Conservation Services (NRCS) Programs	Unknown.	Unknown	Yes.	No
U.S. Army Corps (USACE) Programs	Unknown.	Unknown	Yes.	No
Property, sales, income, or special purpose taxes	No.	Unknown	Yes.	Yes.
Stormwater utility fee	Yes.	Unknown	Yes.	Yes.
Fees for water, sewer, gas, or electric services	Yes.	Unknown	Yes.	Yes.
Impact fees from new development and redevelopment	No.	Unknown	Yes.	Yes.
General obligation or special	No.	Unknown	Yes.	Yes.

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
purpose bonds				
Federally funded programs	No.	Unknown	Unknown	No
State-funded programs	No.	Unknown	Yes.	Yes.
Private sector or nonprofit programs	No.	Unknown	Unknown	N/A
Other?				

Table 290: Financial Capabilities of the City of Harrisville

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	Currently being used to help fund the construction of a new public works building.	Yes	Yes
General Funds	Yes	Upgrading infrastructure, maintaining infrastructure.	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	No	Not used, but are working on the capability	Will be used to upgrade culverts.	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Building Resilient Infrastructure & Communities (BRIC)	Yes	Have received grants to upgrade the detention basin at Independence Park.	Yes. Currently working on a BRIC grant to upgrade infrastructure under Highway 89 to help mitigate flood risk.	No
Flood Mitigation Assistance (FMA)	No	Have not used it	Yes. Plan to apply for these grants in the future.	No
Public Assistance Mitigation (PA Mitigation/ 406)	No.	Unknown	Unknown	No
Community Development Block Grant (CDBG)	Yes	To upgrade basins at Independence Park and Millennial Park.	Yes	No
Natural Resources Conservation Services (NRCS) Programs	No	Unknown	Unknown	No
U.S. Army Corps (USACE) Programs	No	Unknown	Unknown	No
Property, sales, income, or special purpose taxes	Yes	Unknown	Unknown	Yes
Stormwater	Yes	To build and	Yes, to continue	Yes

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
utility fee		maintain all basins, upsizing pipes and culverts	to upgrade infrastructure.	
Fees for water, sewer, gas, or electric services	Yes	Have not been used for mitigation purposes.	Yes	Yes
Impact fees from new development and redevelopment	Yes	Stormwater impact fee has been used to upgrade and maintain stormwater infrastructure in the City.	Yes	Yes
General obligation or special purpose bonds	Yes	Currently being used to help fund a new public works building that will meet all current building codes.	Yes	Unknown
Federally funded programs	Yes	Used a HUD grant to build the sewer system in 1968.	Yes.	No.
State-funded programs	Yes	RAMP. It is a county- and state-funded program.	Unknown	No.
Private sector or nonprofit programs	Yes	No funding. However, used volunteers from local businesses to help with mitigation efforts. North View Fire has used volunteers from Walmart to assist with brush clearing and chipper days.	Yes. Can continue to use volunteers from local businesses and apply for grants from large businesses in the City.	Yes.

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Other?				

Table 291: Financial Capabilities of the City of Hooper

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	Improving streets and storm drainage	Yes	Yes, if funds are available. Budget is tight and resources are limited.
General Funds	Yes	Unknown	Yes. Latest budget includes an emergency fund.	Yes
Hazard Mitigation Grant Program (HMGP/404)	No	Unknown	Unknown	No
Building Resilient Infrastructure & Communities (BRIC)	No	Unknown	Unknown	No
Flood Mitigation Assistance (FMA)	No	Unknown	Unknown	No
Public Assistance	No	Unknown	Unknown	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Mitigation (PA Mitigation/ 406)				
Community Development Block Grant (CDBG)	No	Unknown	Unknown	No
Natural Resources Conservation Services (NRCS) Programs	No	Unknown	Unknown	No
U.S. Army Corps (USACE) Programs	No	Unknown	Unknown	No
Property, sales, income, or special purpose taxes	No	Unknown	Unknown	Unknown
Stormwater utility fee	Yes	Improvements to stormwater infrastructure	Possibly	Unknown
Fees for water, sewer, gas, or electric services	Yes	Unknown	None. Utility taxes on gas and power approved in 2023; 5% goes to an emergency fund, and the balance has not been determined.	Possibly
Impact fees from new	Yes	Maintaining City-owned assets	Unknown	Unknown

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
development and redevelopment				
General obligation or special purpose bonds	Yes	Repayment of sewer system infrastructure	No	No
Federally funded programs	No	Unknown	Unknown	No
State-funded programs	Yes	Currently constructing a major road project on 5500 west that was funded by Weber Area Council of Governments (WACOG) with a match by Hooper City.	No	No
Private sector or nonprofit programs	No	Unknown	Unknown	Unknown
Other?				

Table 292: Financial Capabilities of the City of Huntsville

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	Building new town hall	Yes	Unknown
General Funds	Yes	Community Emergency Response Team (CERT) supplies	Yes	Unknown
Hazard Mitigation Grant Program (HMGP/404)	No	Unknown	Yes	No
Building Resilient Infrastructure & Communities (BRIC)	No	Unknown	Yes	No
Flood Mitigation Assistance (FMA)	No	Unknown	Yes	No
Public Assistance Mitigation (PA Mitigation/ 406)	No	Unknown	Yes	No
Community Development Block Grant (CDBG)	Yes	Yes	Yes	No
Natural Resources Conservation Services (NRCS)	No	Unknown	Yes	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Programs				
U.S. Army Corps (USACE) Programs	No	Unknown	Yes	No
Property, sales, income, or special purpose taxes	Yes	CERT supplies	Yes	Unknown
Stormwater utility fee	No	Unknown	No	Unknown
Fees for water, sewer, gas, or electric services	Yes	Update water treatment plant and distribution system	Yes	Unknown
Impact fees from new development and redevelopment	Yes	Used for cost of development expansion	Yes	Unknown
General obligation or special purpose bonds	No	Unknown	No	Unknown
Federally funded programs	No	Unknown	Yes	Unknown
State-funded programs	No	Unknown	Yes	Unknown
Private sector or nonprofit programs	Yes	CERT trailer	Possibly	Unknown

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Other?				

Table 293: Financial Capabilities of the City of Marriott–Slaterville

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	Through CDBG funding for projects.	Yes	No
General Funds	Yes	Maintenance of City infrastructure.	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	Yes	Unknown	Yes	No
Building Resilient Infrastructure & Communities (BRIC)	No	Unknown	Unknown	No
Flood Mitigation Assistance (FMA)	No	Unknown	Yes	No
Public Assistance Mitigation (PA Mitigation/ 406)	No	Unknown	No	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Community Development Block Grant (CDBG)	Yes	Funding projects in the Capital Investments Plan	Yes	No
Natural Resources Conservation Services (NRCS) Programs	No	Unknown	Yes	No
U.S. Army Corps (USACE) Programs	No	No	Yes	No
Property, sales, income, or special purpose taxes	Yes	Stormwater infrastructure/flood mitigation projects.	Yes	Yes
Stormwater utility fee	Yes	Infrastructure/flood mitigation projects.	Yes	Yes
Fees for water, sewer, gas, or electric services	Yes	Unknown	Yes	Yes
Impact fees from new development and redevelopment	Yes	Projects to increase infrastructure resilience	Yes	Yes
General obligation or special purpose bonds	No	Unknown	Yes	Yes
Federally funded	No	Unknown	No	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
programs				
State-funded programs	No	Unknown	No	No
Private sector or nonprofit programs	No	Unknown	No	No
Other?				

Table 294: Financial Capabilities of the City of North Ogden

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	Replacements	Yes	Yes
General Funds	Yes	Replacements	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	No	Unknown	Unknown	No
Building Resilient Infrastructure & Communities (BRIC)	No	Unknown	Unknown	No
Flood	No	Unknown	Unknown	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Mitigation Assistance (FMA)				
Public Assistance Mitigation (PA Mitigation/ 406)	No	Unknown	Unknown	No
Community Development Block Grant (CDBG)	No	Unknown	Unknown	No
Natural Resources Conservation Services (NRCS) Programs	No	Unknown	Unknown	No
U.S. Army Corps (USACE) Programs	No	Unknown	Unknown	No
Property, sales, income, or special purpose taxes	Yes	Replacements	Yes	Yes
Stormwater utility fee	Yes	Replacements	Yes	Yes
Fees for water, sewer, gas, or electric services	Yes	Replacements	Yes	Yes
Impact fees from new development and	Yes	Upgrades	Yes	Yes

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
redevelopment				
General obligation or special purpose bonds	No	Unknown	Unknown	Unknown
Federally funded programs	No	Unknown	Unknown	Unknown
State-funded programs	No	Unknown	Unknown	Unknown
Private sector or nonprofit programs	No	Unknown	Unknown	Unknown
Other?				

Table 295: Financial Capabilities of the City of Ogden

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project (CIP) Funding	Yes	Has been used for various infrastructure projects, including the following: • Roadway improvements and expansions • Bridge construction and maintenance • Upgrades to water and sewer systems • Construction of public buildings, such as schools and fire stations • Stormwater management projects to reduce flood risk	Yes. Can be allocated to future mitigation projects, such as: • Enhancing the resilience of critical infrastructure (e.g., retrofitting bridges and buildings to withstand earthquakes) • Expanding and upgrading stormwater systems to manage increased runoff and prevent flooding • Implementing flood control measures, such as levees and retention basins • Constructing new emergency response facilities and upgrading existing ones to improve disaster response capabilities • Developing green infrastructure projects to enhance natural flood defenses	Yes. Can be used to match federal grants, enabling Ogden City to leverage additional federal funding for large-scale mitigation projects. This can significantly enhance the City's ability to implement comprehensive hazard mitigation strategies.
General Funds	Yes	Have been used for a wide range of municipal activities, including the following: • Routine maintenance and operation of City services.	Yes. Can be allocated to support various mitigation actions, such as: • Public awareness campaigns and community education on disaster preparedness.	Yes. Can be used to provide the local match required for federal grants, enabling the City to

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
		• Public safety and emergency services. • Minor infrastructure repairs and improvements. • Community outreach and education programs. • Planning and regulatory updates.	• Small-scale infrastructure improvements that enhance resilience to hazards (e.g., drainage improvements, installation of backup power systems). • Emergency planning and response initiatives, including developing and updating hazard mitigation plans. • Training for City staff and emergency responders in hazard mitigation and disaster response.	secure additional funding for larger mitigation projects. This can significantly amplify the impact of general fund expenditures by leveraging federal support for comprehensive hazard mitigation efforts.
Hazard Mitigation Grant Program (HMGP/404)	No	Has been used for various mitigation activities, including the following: • Flood mitigation projects, such as the Weber River.	Yes. HMGP Can support a wide range of future mitigation projects, such as: • Strengthening public infrastructure to resist natural hazards. • Enhancing flood control systems to reduce the risk of flooding. • Supporting community-wide resilience projects, including green infrastructure and sustainable land use planning.	No
Building Resilient Infrastructure & Communities (BRIC)	No	Unknown if BRIC has ever been received.	Yes, many mitigation projects are out of reach for the City due to costs.	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Flood Mitigation Assistance (FMA)	No	Has been used for projects including the following: • Installing flood measures for critical infrastructure in the Ogden and Weber Rivers.	Yes. Can support future mitigation projects, such as: • Expanding flood barrier systems and stormwater management infrastructure. • Developing green infrastructure projects to naturally manage and mitigate flood risks. • Ongoing updates to flood mitigation and management plans to incorporate new data and technologies.	No
Public Assistance Mitigation (PA Mitigation/ 406)	Unknown	Unknown	Unknown	No
Community Development Block Grant (CDBG)	Unknown	Unknown	Unknown	No
Natural Resources Conservation Services (NRCS) Programs	No	Have been used for activities including the following: • Watershed protection and flood prevention projects. • Soil conservation and erosion	Yes. Can support future mitigation projects, such as: • Expanding watershed management projects to further reduce flood risks and enhance water	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
		control measures. • Restoration of natural habitats and ecosystems to enhance resilience against natural hazards. • Implementation of agricultural best practices to reduce runoff and improve water quality.	quality. • Implementing soil stabilization and erosion control measures to prevent landslides and protect infrastructure. • Restoring and conserving wetlands and other natural habitats that serve as natural buffers against floods and storms.	
U.S. Army Corps (USACE) Programs	Unknown	Unknown	Unknown	No
Property, sales, income, or special purpose taxes	Yes	Taxes help fund the Capital Improvement Plan and general budgets to complete most projects in the City.	Yes. Supports all future projects that will be budgeted for.	Yes. Will be used for local match and to fund employee costs for work on projects.

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Stormwater utility fee	Yes	Has been used for: • Maintenance and improvement of the stormwater drainage system. • Construction of new stormwater infrastructure, such as retention basins and drainage channels. • Implementation of flood control measures to mitigate the impacts of heavy rainfall and runoff. • Routine inspections and cleaning of stormwater systems to ensure proper function.	Yes. The fee can support future mitigation projects, including the following: • Expansion and upgrading of existing stormwater infrastructure to handle increased runoff. • Implementation of advanced stormwater management technologies and systems.	Yes. The fee can be used as a local match for federal grants, particularly those related to flood mitigation and water quality improvement projects. This can help leverage additional federal funding to support comprehensive stormwater management and flood mitigation efforts.
Fees for water, sewer, gas, or electric services	No	Unknown	Unknown	Unknown
Impact fees from new development and redevelopment	No	Unknown	Unknown	Unknown
General obligation or special purpose bonds	Yes	To retrofit municipal building for earthquake and build PSB and PW buildings to code.	Yes. To fund bigger projects that will benefit the entire City.	Unknown

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Federally funded programs	Yes	Small grants to help fund mitigation projects and community resiliency projects.	Yes. To keep programs funded.	Unknown
State-funded programs	Yes	Grants to help fund mitigation and planning efforts.	Yes. Grants to help fund mitigation and planning efforts.	Unknown
Private sector or nonprofit programs	No	Unknown	Unknown	Unknown
Other?				

Table 296: Financial Capabilities of the Ogden City School District

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	Renovation and replacement of facilities that do not meet safety standards	Yes	Yes
General Funds	No	Unknown	Unknown	Unknown
Hazard Mitigation Grant Program (HMGP/404)	No	Unknown	Unknown	No
Building Resilient Infrastructure & Communities (BRIC)	No	Unknown	Unknown	No
Flood Mitigation Assistance (FMA)	No	Unknown	Unknown	No
Public Assistance Mitigation (PA Mitigation/ 406)	No	Unknown	Unknown	No
Community Development Block Grant (CDBG)	No	Unknown	Unknown	No
Natural Resources Conservation Services (NRCS) Programs	No	Unknown	Unknown	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
U.S. Army Corps (USACE) Programs	No	Unknown	Unknown	No
Property, sales, income, or special purpose taxes	Yes	Renovation and replacement of facilities that do not meet safety standards	Yes	Yes
Stormwater utility fee	No	Unknown	Unknown	Unknown
Fees for water, sewer, gas, or electric services	No	Unknown	Unknown	Unknown
Impact fees from new development and redevelopment	No	Unknown	Unknown	Unknown
General obligation or special purpose bonds	Yes	Renovation and replacement of facilities that do not meet safety standards	Yes	Yes
Federally funded programs	Yes	ESSER funds used for facility upgrades to support building/ occupant health	No	No
State-funded programs	No	Unknown	Unknown	Unknown
Private sector or nonprofit programs	No	Unknown	Unknown	Unknown

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Other?				

Table 297: Financial Capabilities of the City of Pleasant View

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	For major capital facilities and long-term planning and maintenance	Yes	Depends on whether the cost is included in the City's long-term plans.
General Funds	Yes	Unknown	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	No	Unknown	Unknown	No
Building Resilient Infrastructure & Communities (BRIC)	No	Unknown	Unknown	No
Flood Mitigation Assistance (FMA)	No	Unknown	Unknown	No
Public Assistance Mitigation (PA Mitigation/ 406)	No	Unknown	Unknown	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Community Development Block Grant (CDBG)	No	Unknown	Unknown	No
Natural Resources Conservation Services (NRCS) Programs	No	Unknown	Unknown	No
U.S. Army Corps (USACE) Programs	No	Unknown	Unknown	No
Property, sales, income, or special purpose taxes	Yes	Unknown	Yes	Yes
Stormwater utility fee	Yes	Unknown	Yes	Yes
Fees for water, sewer, gas, or electric services	Yes	Unknown	Yes	Yes
Impact fees from new development and redevelopment	Yes	Unknown	No	No
General obligation or special purpose bonds	Yes	Unknown	No	No
Federally funded	No	Unknown	Unknown	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
programs				
State-funded programs	No	Unknown	Unknown	Unknown
Private sector or nonprofit programs	No	Unknown	Unknown	Unknown
Other?				

Table 298: Financial Capabilities of the City of Riverdale

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	Retrofit facilities and for other mitigation efforts	Yes	Yes
General Funds	Yes	Retrofit facilities and for other mitigation efforts	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	No	Unknown	Unknown	No
Building Resilient Infrastructure & Communities (BRIC)	No	Unknown	Unknown	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Flood Mitigation Assistance (FMA)	Yes	Fund repairs associated with natural disasters	Yes	No
Public Assistance Mitigation (PA Mitigation/ 406)	No	Unknown	Unknown	No
Community Development Block Grant (CDBG)	Yes	Help fund infrastructure projects	Yes	No
Natural Resources Conservation Services (NRCS) Programs	No	Unknown	Unknown	No
U.S. Army Corps (USACE) Programs	Yes	To help fund infrastructure	Possibly	No
Property, sales, income, or special purpose taxes	Yes	To fund general operations of the City.	Possibly	Possibly
Stormwater utility fee	Yes	To operate the City's stormwater system	Possibly	Possibly
Fees for water, sewer, gas, or electric services	Yes	To operate the City's Water, Sewer, and Garbage Enterprise Services and Funds	Unknown	Unknown
Impact fees	No	Currently not	Unknown	Unknown

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
from new development and redevelopment		charging		
General obligation or special purpose bonds	No	To fund large infrastructure projects that the City could not fund from general revenue.	Possibly	Possibly
Federally funded programs	Yes	ARPA, CARES, Etc. Other grants have helped pay for various infrastructure improvements and mitigation efforts.	Possibly	Possibly
State-funded programs	Yes	To help fund infrastructure projects	Possibly	Possibly
Private sector or nonprofit programs	No	Unknown	Unknown	Unknown
Other?				

Table 299: Financial Capabilities of the City of Roy

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project (CIP) Funding	Yes	Funding has been used for a variety of infrastructure projects, including: • Roadway improvements and expansions. • Bridge construction and maintenance. • Upgrades to water and sewer systems. • Construction of public buildings such as schools and fire stations. • Stormwater management projects to reduce flood risks.	• Yes. CIP funding can be allocated to future mitigation projects, such as: • Enhancing the resilience of critical infrastructure (e.g., retrofitting bridges and buildings to withstand earthquakes). • Expanding and upgrading stormwater systems to manage increased runoff and prevent flooding. • Implementing flood control measures such as levees and retention basins. • Constructing new emergency response facilities and upgrading existing ones to improve disaster response capabilities. • Developing green infrastructure projects	Yes. CIP funding can be used as the local cost match for federal grants, enabling Roy City to leverage additional federal funding for large-scale mitigation projects. This can significantly enhance the city's ability to implement comprehensive hazard mitigation strategies.
General Funds	Yes	General funds have been used for a wide range of municipal activities, including: • Routine maintenance and operation of city services. • Public safety and emergency services. • Minor infrastructure repairs and improvements.	General funds can be allocated to support various mitigation actions, such as: • Public awareness campaigns and community education on disaster preparedness. • Small-scale infrastructure improvements that enhance resilience to hazards (e.g., drainage improvements, installation of backup power systems).	Yes. General funds can be used to provide the local match required for federal grants, enabling the city to secure additional funding for larger mitigation projects. This can

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
		• Community outreach and education programs. • Planning and regulatory updates.	• Emergency planning and response initiatives, including the development and update of hazard mitigation plans. • Training for city staff and emergency responders in hazard mitigation and disaster response.	significantly amplify the impact of general fund expenditures by leveraging federal support for comprehensive hazard mitigation efforts.
Hazard Mitigation Grant Program (HMGP/404)	No	Unknown	Unknown	No
Building Resilient Infrastructure & Communities (BRIC)	No	Unknown	Unknown	No
Flood Mitigation Assistance (FMA)	No	Unknown	Unknown	No
Public Assistance Mitigation (PA Mitigation/ 406)	No	Unknown	Unknown	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Community Development Block Grant (CDBG)	No	The last two were used for • Replacing sewer & water lines, curb, gutter, and sidewalk at 2075 W, 2225 W & 3950 S • Constructing the Hope Center, for a Senior Center and Boys & Girls Club	Must apply every year, but no guarantee of funding. Funds are limited and many communities request funds.	No, this is a federal grant.
Natural Resources Conservation Services (NRCS) Programs	No	Unknown	Unknown	No
U.S. Army Corps (USACE) Programs	No	Unknown	Unknown	No
Property, sales, income, or special purpose taxes	Yes	General fund activities	Yes	Yes
Stormwater utility fee	Yes	Stormwater activities	Yes	Yes

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Fees for water, sewer, gas, or electric services	Yes	Water & sewer activities	Yes	Yes
Impact fees from new development and redevelopment	Yes	System upgrades due to new development	No	No
General obligation or special purpose bonds	No	Unknown	Unknown	Unknown
Federally funded programs	No	Unknown	Unknown	No
State-funded programs	No	Unknown	Unknown	Unknown
Private sector or nonprofit programs	No	Unknown	Unknown	Unknown
Other?				

Table 300: Financial Capabilities of the City of South Ogden

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	Unknown	Unknown	Unknown
General Funds	Yes	Unknown	Unknown	Unknown
Hazard Mitigation Grant Program (HMGP/404)	No	Unknown	Unknown	No
Building Resilient Infrastructure & Communities (BRIC)	No	Unknown	Unknown	No
Flood Mitigation Assistance (FMA)	No	Unknown	Unknown	No
Public Assistance Mitigation (PA Mitigation/ 406)	No	Unknown	Unknown	No
Community Development Block Grant (CDBG)	No	Unknown	Unknown	No
Natural Resources Conservation Services (NRCS) Programs	No	Unknown	Unknown	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
U.S. Army Corps (USACE) Programs	No	Unknown	Unknown	No
Property, sales, income, or special purpose taxes	No	Unknown	Unknown	Unknown
Stormwater utility fee	No	Unknown	Unknown	Unknown
Fees for water, sewer, gas, or electric services	No	Unknown	Unknown	Unknown
Impact fees from new development and redevelopment	Yes	Unknown	Unknown	Unknown
General obligation or special purpose bonds	No	Unknown	Unknown	Unknown
Federally funded programs	No	Unknown	Unknown	No
State-funded programs	No	Unknown	Unknown	Unknown
Private sector or nonprofit programs	No	Unknown	Unknown	Unknown
Other?				

Table 301: Financial Capabilities of the City of Uintah

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	Used for road improvements	Yes	Yes
General Funds	Yes	Used to improve departments and acquire equipment needed.	Not really. The budget is not big enough to allow for much extra.	Yes, depending on the amount of the grant.
Hazard Mitigation Grant Program (HMGP/404)	No	Unknown	Unknown	No
Building Resilient Infrastructure & Communities (BRIC)	No	Unknown	Unknown	No
Flood Mitigation Assistance (FMA)	No	Unknown	Unknown	No
Public Assistance Mitigation (PA Mitigation/ 406)	No	Unknown	Unknown	No
Community Development Block Grant (CDBG)	Yes	Has been used for City improvements, most recently for a water meter vault.	Yes	Yes
Natural Resources Conservation	No	Unknown	Unknown	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Services (NRCS) Programs				
U.S. Army Corps (USACE) Programs	No	Unknown	Unknown	No
Property, sales, income, or special purpose taxes	Yes	Unknown	Unknown	Unknown
Stormwater utility fee	Yes	Not used; the amount collected only covers expenses.	No	No
Fees for water, sewer, gas, or electric services	Yes	Have used fees to help build two new water tanks.	Yes	Yes
Impact fees from new development and redevelopment	Yes	Not sure if it has been used for such	Possibly	
General obligation or special purpose bonds	No	Unknown	Unknown	Unknown
Federally funded programs	No	Unknown	Unknown	No
State-funded programs	No	Unknown	Unknown	Unknown
Private sector	No	Unknown	Unknown	Unknown

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
or nonprofit programs				
Other?				

Table 302: Financial Capabilities of the City of Washington Terrace

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project (CIP) Funding	Yes	CIP funds have been instrumental in supporting various projects that contribute to hazard mitigation efforts. While not a specific fund itself, CIP funds allocate resources for vital infrastructure projects, such as public buildings, improvements to mitigate hazardous conditions, roadway enhancements, and park developments. These funds play a crucial role in enhancing community resilience by investing in infrastructure that can withstand and mitigate the impacts of natural disasters and other hazards. For instance, funds may be allocated for building improvements that enhance structural integrity against seismic events or flooding. Roadway projects might include upgrades to drainage systems to reduce the risk of flood damage. Parks and green spaces developed with these funds can serve as buffers against environmental hazards and provide recreational opportunities that contribute to community well-being and safety. By strategically allocating CIP funds, municipalities can prioritize projects that not only enhance infrastructure but also reduce vulnerability to hazards, protect public safety, and promote sustainable development. This approach ensures that community resources are used effectively to build and maintain resilient infrastructure that benefits residents now and in the future.	Yes	Yes

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
General Funds	Yes	Limited to general fund projects related to Fire, Police, parks, and public buildings related to general fund activities.	Yes	Can be used only for General Fund-specific projects. This would not include water, sewer, storm, or refuse.
Hazard Mitigation Grant Program (HMGP/404)	No	Unknown	It could be helpful	No
Building Resilient Infrastructure & Communities (BRIC)	No	Unknown	Possibly	No
Flood Mitigation Assistance (FMA)	No	Unknown	Unknown	No
Public Assistance Mitigation (PA Mitigation/ 406)	No	Unknown	Unknown	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Community Development Block Grant (CDBG)	Yes	Have been used extensively to support critical water and sewer projects aimed at mitigating hazardous conditions and ensuring the sustainability of City infrastructure. These projects encompass a range of initiatives, such as replacing aging water lines, upgrading water storage tanks to improve systemic reliability, and replacing water valves to enhance operational efficiency and response to emergencies. By focusing CDBG funds on these infrastructure improvements, the City not only addresses immediate needs but also strengthens its resilience against natural disasters and other hazardous conditions. The strategic use of CDBG funds in water and sewer projects plays a pivotal role in safeguarding public health and safety. Upgrading water infrastructure reduces the risk of contamination and service disruptions during emergencies, such as floods or earthquakes. Similarly, enhancing sewer systems helps mitigate environmental risks and ensures compliance with regulatory standards, contributing to the overall sustainability of the City's infrastructure. Furthermore, these investments support long-term economic stability by enhancing the reliability and efficiency of essential services. By improving infrastructure resilience through targeted CDBG-funded projects, the City demonstrates its commitment to proactive hazard mitigation and sustainable development practices. In summary, the use of CDBG funds for water and sewer	Unknown	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
		projects not only addresses immediate infrastructure needs but also strengthens resilience against hazards. This approach underscores the City's dedication to enhancing public safety, protecting natural resources, and fostering sustainable growth for the benefit of its residents and future generations.		
Natural Resources Conservation Services (NRCS) Programs	No	Unknown	Unknown	No
U.S. Army Corps (USACE) Programs	No	Unknown	Unknown	No
Property, sales, income, or special purpose taxes	No	Unknown	This is not on the horizon for implementation.	Unknown

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Stormwater utility fee	Yes	This fee funds critical stormwater improvements aimed at mitigating related hazards. It supports infrastructure projects like retention ponds, drainage upgrades, and green infrastructure installations. These efforts reduce flooding risks, improve water quality by filtering pollutants, and enhance the City's resilience to climate impacts. The fee ensures sustainable funding for ongoing maintenance and prepares the City for future challenges. Public education promotes community involvement in stormwater management, fostering environmental stewardship and hazard mitigation.	Yes	Yes
Fees for water, sewer, gas, or electric services	Yes	Yes, the City maintains dedicated accounts for water and sewer operations and capital improvements, crucial for mitigating hazards associated with aging infrastructure and at-risk sewer lines. These funds support initiatives, such as replacing deteriorating infrastructure and reinforcing vulnerable sewer lines through lining projects. The City employs a proactive planning process that systematically assesses infrastructure conditions to prioritize removal and replacement projects. This comprehensive evaluation considers factors like structural integrity, environmental impact, and vulnerability to natural hazards. By identifying and addressing critical infrastructure needs in a timely manner, the City minimizes risks of service disruptions, environmental contamination, and public health hazards.	Yes, it is an important part of hazard mitigation planning and projects.	Yes

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
		This approach not only enhances the reliability and efficiency of water and sewer services but also strengthens the City's resilience to potential disasters. By allocating resources effectively, the City ensures sustainable infrastructure management and promotes community safety and well-being.		
Impact fees from new development and redevelopment	Yes	Impact fees are collected for buy in and recapture of project constructed that support future development. Impact fees are reflected in water, storm, sewer, and public safety.	Yes, if the project aligns with impact related activities.	Yes, it depends on the project
General obligation or special purpose bonds	Not at this time	It has been used in the past for a comprehensive upgrade of the water, storm, and sewer system in the older part of the City.	No future plans for general obligation bonds.	No
Federally funded programs	Yes	A Community Grant to support the replacement of an aging fire pumper truck is under final review. This grant specifically aligns with the need to improve fire response and mitigates the real chance that the fire engine will be out of service.	Federal Community Project Grant to replace the City's fire engine.	Yes, and there is a match from local funds.
State-funded programs	No	Unknown	Unknown	Unknown
Private sector or nonprofit	No	Unknown	Unknown	Unknown

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
programs				
Other?				

Table 303: Financial Capabilities of the City of West Haven

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	Municipal projects	Yes	Unsure
General Funds	Yes	Unknown	If the council directs it	Unknown
Hazard Mitigation Grant Program (HMGP/404)	No	An application has been submitted.	Unknown	No
Building Resilient Infrastructure & Communities (BRIC)	No	Unknown	Unknown	No
Flood Mitigation Assistance (FMA)	No	Unknown	Unknown	No
Public Assistance Mitigation (PA Mitigation/ 406)	No	Unknown	Unknown	No
Community Development Block Grant (CDBG)	No	Unknown	Unknown	No
Natural Resources Conservation Services (NRCS) Programs	No	Unknown	Unknown	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
U.S. Army Corps (USACE) Programs	No	Unknown	Unknown	No
Property, sales, income, or special purpose taxes	No	Unknown	Unknown	Unknown
Stormwater utility fee	Yes	No	No	Unknown
Fees for water, sewer, gas, or electric services	Yes	No	No	Unknown
Impact fees from new development and redevelopment	Yes	Yes	Yes	Unknown
General obligation or special purpose bonds	No	Unknown	Unknown	Unknown
Federally funded programs	No	Unknown	Unknown	No
State-funded programs	No	Unknown	Unknown	Unknown
Private sector or nonprofit programs	No	Unknown	Unknown	Unknown
Other?				

Table 304: Financial Capabilities of Plain City

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	Unknown	Unknown	Unknown
General Funds	Yes	Unknown	Unknown	Unknown
Hazard Mitigation Grant Program (HMGP/404)	No	Unknown	Unknown	No
Building Resilient Infrastructure & Communities (BRIC)	No	Unknown	Unknown	No
Flood Mitigation Assistance (FMA)	Unknown	Unknown	Unknown	No
Public Assistance Mitigation (PA Mitigation/ 406)	No	Unknown	Unknown	No
Community Development Block Grant (CDBG)	No	Unknown	Unknown	No
Natural Resources Conservation Services (NRCS) Programs	No	Unknown	Unknown	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
U.S. Army Corps (USACE) Programs	No	Unknown	Unknown	No
Property, sales, income, or special purpose taxes	No	Unknown	Unknown	Unknown
Stormwater utility fee	No	Unknown	Unknown	Unknown
Fees for water, sewer, gas, or electric services	No	Unknown	Unknown	Unknown
Impact fees from new development and redevelopment	No	Unknown	Unknown	Unknown
General obligation or special purpose bonds	No	Unknown	Unknown	Unknown
Federally funded programs	No	Unknown	Unknown	Unknown
State-funded programs	No	Unknown	Unknown	Unknown
Private sector or nonprofit programs	No	Unknown	Unknown	Unknown
Other?				

Table 305: Financial Capabilities of the Hooper Water Improvement District

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	Not for hazard mitigation	Yes, earthquake mitigation	Yes
General Funds	Yes	Not for hazard mitigation	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	No	No	Yes	Unknown
Building Resilient Infrastructure & Communities (BRIC)	No	No	No	No
Flood Mitigation Assistance (FMA)	No	Yes	Yes	No
Public Assistance Mitigation (PA Mitigation/ 406)	No	Unknown	Unknown	No
Community Development Block Grant (CDBG)	No	Unknown	No	No
Natural Resources Conservation Services (NRCS) Programs	No	Unknown	No	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
U.S. Army Corps (USACE) Programs	No	Unknown	No	No
Property, sales, income, or special purpose taxes	No	Unknown	No	No
Stormwater utility fee	No	Unknown	No	No
Fees for water, sewer, gas, or electric services	No	Yes	Yes	Unknown
Impact fees from new development and redevelopment	No	Yes	Yes	Unknown
General obligation or special purpose bonds	No	Unknown	No	No
Federally funded programs	No	Unknown	Yes	Unknown
State-funded programs	No	Unknown	Yes	Unknown
Private sector or nonprofit programs	No	Unknown	No	Unknown
Other?				

Table 306: Financial Capabilities of the Pineview Water System

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	No	Unknown	Unknown	Unknown
General Funds	No	Unknown	Unknown	Unknown
Hazard Mitigation Grant Program (HMGP/404)	No	Unknown	Unknown	No
Building Resilient Infrastructure & Communities (BRIC)	No	Unknown	Unknown	No
Flood Mitigation Assistance (FMA)	No	Unknown	Unknown	No
Public Assistance Mitigation (PA Mitigation/ 406)	No	Unknown	Unknown	No
Community Development Block Grant (CDBG)	No	Unknown	Unknown	No
Natural Resources Conservation Services (NRCS) Programs	No	Unknown	Unknown	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
U.S. Army Corps (USACE) Programs	No	Unknown	Unknown	No
Property, sales, income, or special purpose taxes	No	Unknown	Unknown	Unknown
Stormwater utility fee	No	Unknown	Unknown	Unknown
Fees for water, sewer, gas, or electric services	No	Unknown	Unknown	Unknown
Impact fees from new development and redevelopment	No	Unknown	Unknown	Unknown
General obligation or special purpose bonds	No	Unknown	Unknown	Unknown
Federally funded programs	No	Unknown	Unknown	Unknown
State-funded programs	No	Unknown	Unknown	Unknown
Private sector or nonprofit programs	No	Unknown	Unknown	Unknown
Other?				

Table 307: Financial Capabilities of the Roy Water Conservancy District

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	Yes, for capital improvement projects	Yes	Yes
General Funds	Yes	No	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	No	Unknown	Unknown	No
Building Resilient Infrastructure & Communities (BRIC)	No	Unknown	Unknown	No
Flood Mitigation Assistance (FMA)	No	Unknown	Unknown	No
Public Assistance Mitigation (PA Mitigation/ 406)	No	Unknown	Unknown	No
Community Development Block Grant (CDBG)	No	Unknown	Unknown	No
Natural Resources Conservation Services (NRCS) Programs	No	Unknown	Unknown	No
U.S. Army Corps (USACE) Programs	No	Unknown	Unknown	No
Property, sales, income, or special purpose	Yes	No	No	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
taxes				
Stormwater utility fee	No	Unknown	Unknown	Unknown
Fees for water, sewer, gas, or electric services	Yes	Unknown	Unknown	Unknown
Impact fees from new development and redevelopment	No	Unknown	Unknown	Unknown
General obligation or special purpose bonds	No	Unknown	Unknown	Unknown
Federally funded programs	Yes, BOR WaterSmart Grants and ARPA funds	Yes, for secondary water metering project	No	No
State-funded programs	Yes, Utah Board of Water Resources Loan	Yes, for secondary water metering project	No	No
Private sector or nonprofit programs	No	Unknown	Unknown	Unknown
Other?				

Table 308: Financial Capabilities of Taylor West Weber Water District

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Y	To upgrade the system and replace water lines	No	Yes
General Funds	Y	Yes to upgrade structures and water lines	No	Yes
Hazard Mitigation Grant Program (HMGP/404)	No	Unknown	Unknown	No
Building Resilient Infrastructure & Communities (BRIC)	No	Unknown	Unknown	No
Flood Mitigation Assistance (FMA)	No	Unknown	Unknown	No
Public Assistance Mitigation (PA Mitigation/ 406)	No	Unknown	Unknown	No
Community Development Block Grant (CDBG)	No	Unknown	Unknown	No
Natural Resources Conservation Services (NRCS)	No	Unknown	Unknown	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Programs				
U.S. Army Corps (USACE) Programs	No	Unknown	Unknown	No
Property, sales, income, or special purpose taxes	No	Unknown	Unknown	No
Stormwater utility fee	No	Unknown	Unknown	No
Fees for water, sewer, gas, or electric services	Yes, Water	For any needs the district needs	Unknown	Yes
Impact fees from new development and redevelopment	Yes	Infrastructure and updates to the hydraulic system as needed	No	Yes
General obligation or special purpose bonds	Yes	Same as above	Unknown	Yes
Federally funded programs	Not right now	Upgrades and new infrastructure	Unknown	No
State-funded programs	Not right now	Same as above	Unknown	No
Private sector or nonprofit programs	No	Unknown	Unknown	Unknown

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Other?				

Table 309: Financial Capabilities of the Weber Morgan Health Department

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	Funding is an ongoing budget line items used for building improvements per the 5-year plan	If building hazards are identified, funding may be used to mitigate	Unsure
General Funds	Yes	Funds have been used in the past to pay expenditures incurred by COVID-19 (staff, supplies, equipment)	The health department maintains a fund balance for emergency use per Utah State code: 11-13-512	No
Hazard Mitigation Grant Program (HMGP/404)	No	Unknown	Unknown	No
Building Resilient Infrastructure & Communities (BRIC)	No	Unknown	Unknown	No
Flood Mitigation Assistance (FMA)	No	Unknown	Unknown	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Public Assistance Mitigation (PA Mitigation/ 406)	No	Unknown	Unknown	No
Community Development Block Grant (CDBG)	No	Unknown	Unknown	No
Natural Resources Conservation Services (NRCS) Programs	No	Unknown	Unknown	No
U.S. Army Corps (USACE) Programs	No	Unknown	Unknown	No
Property, sales, income, or special purpose taxes	No	Unknown	Unknown	Unknown
Stormwater utility fee	No	Unknown	Unknown	Unknown
Fees for water, sewer, gas, or electric services	No	Unknown	Unknown	Unknown
Impact fees from new development and redevelopment	No	Unknown	Unknown	Unknown
General	No	Unknown	Unknown	Unknown

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
obligation or special purpose bonds				
Federally funded programs	No	Unknown	Unknown	Unknown
State-funded programs	No	Unknown	Unknown	Unknown
Private sector or nonprofit programs	No	Unknown	Unknown	Unknown
Other?				

Table 310: Financial Capabilities of the Weber School District

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	Building and upgrading schools	Yes	Yes
General Funds	Yes	Unknown	No	Unknown
Hazard Mitigation Grant Program (HMGP/404)	No	Unknown	Unknown	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Building Resilient Infrastructure & Communities (BRIC)	No	Unknown	Unknown	No
Flood Mitigation Assistance (FMA)	No	Unknown	Unknown	No
Public Assistance Mitigation (PA Mitigation/ 406)	No	Unknown	Unknown	No
Community Development Block Grant (CDBG)	No	Unknown	Unknown	No
Natural Resources Conservation Services (NRCS) Programs	No	Unknown	Unknown	No
U.S. Army Corps (USACE) Programs	No	Unknown	Unknown	No
Property, sales, income, or special purpose taxes	Yes	Upgrading security systems and facilities	Yes	Yes
Stormwater utility fee	No	Unknown	Unknown	Unknown
Fees for water,	No	Unknown	Unknown	Unknown

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
sewer, gas, or electric services				
Impact fees from new development and redevelopment	No	Unknown	Unknown	Unknown
General obligation or special purpose bonds	Yes	Build and upgrade schools	Yes	Yes
Federally funded programs	Yes (School Lunch)	COVID pandemic	Unknown	Unknown
State-funded programs	Yes (School Safety Grants)	Building safety and security upgrades	No (one-time allocations)	No
Private sector or nonprofit programs	No	Unknown	Unknown	Unknown
Other?				

Table 311: Financial Capabilities of the West Warren–Warren Water Improvement District

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Yes	To upgrade water lines and loop them; adding or replacing fire hydrants	Unknown	Unknown
General Funds	Yes	Unknown	Unknown	Unknown
Hazard Mitigation Grant Program (HMGP/404)	No	Unknown	Unknown	No
Building Resilient Infrastructure & Communities (BRIC)	No	Unknown	Unknown	No
Flood Mitigation Assistance (FMA)	No	Unknown	Unknown	No
Public Assistance Mitigation (PA Mitigation/ 406)	No	Unknown	Unknown	No
Community Development Block Grant (CDBG)	No	Unknown	Unknown	No
Natural Resources Conservation Services (NRCS) Programs	No	Unknown	Unknown	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
U.S. Army Corps (USACE) Programs	No	Unknown	Unknown	No
Property, sales, income, or special purpose taxes	Yes	Unknown	Unknown	Unknown
Stormwater utility fee	No	Unknown	Unknown	Unknown
Fees for water, sewer, gas, or electric services	Yes	To upgrade water lines and loop them; adding or replacing fire hydrants	Unknown	Unknown
Impact fees from new development and redevelopment	Yes	To upgrade water lines and loop them; adding or replacing fire hydrants	Unknown	Unknown
General obligation or special purpose bonds	No	Unknown	Unknown	Unknown
Federally funded programs	No	Unknown	Unknown	Unknown
State-funded programs	Yes	To upgrade water lines and loop them; adding or replacing fire hydrants; replacing old meters.	Asking the state legislature to fund a feasibility study for a general infrastructure plan for the area, including future needs for population growth and	Unknown

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
			emergency needs.	
Private sector or nonprofit programs	Yes. Have an agreement with a developer.	Not used; still in the beginning stages of planning and engineering.	Yes, it will fund a water storage tank.	Unknown
Other?				

Table 312 Financial Capabilities of the Central Weber Sewer Improvement District

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	Y	Yes. Capital improvements	Yes	Yes
General Funds	Y	Operations and capital improvements	Yes	Yes
Hazard Mitigation Grant Program (HMGP/404)	N			

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Building Resilient infrastructure & Communities (BRIC)	N			
Flood Mitigation Assistance (FMA)	N			
Public Assistance Mitigation (PA Mitigation/406)	N			
Community Development Block Grant (CDBG)	N			
Natural Resources Conservation Services (NRCS) Programs	N			
U.S. Army Corps (USACE) Programs	N			
Property, Sales, Income, or Special Purpose Taxes	Y	Operations	Yes	Yes – If limited to operations
Stormwater Utility Fee	N			

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Fees for Water, Sewer, Gas, or Electric Services	Y	Operations and capital improvements	Yes	Yes
Impact Fees From New Development and Redevelopment	Y	Capital improvements	Unknown	Unknown
General Obligation or Special Purpose Bonds	Y	Capital improvements	Unknown	Unknown
Federal-funded Programs (Please describe)	N			
State-funded Programs (Please describe)	N			
Private Sector or Non-profit Programs	N			
Other?				

Table 313: Financial Capabilities of the Weber Fire District

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	No	Unknown	Unknown	Unknown
General Funds	No	Unknown	Unknown	Unknown
Hazard Mitigation Grant Program (HMGP/404)	No	Unknown	Unknown	No
Building Resilient Infrastructure & Communities (BRIC)	No	Unknown	Unknown	No
Flood Mitigation Assistance (FMA)	No	Unknown	Unknown	No
Public Assistance Mitigation (PA Mitigation/ 406)	No	Unknown	Unknown	No
Community Development Block Grant (CDBG)	No	Unknown	Unknown	No
Natural Resources Conservation Services (NRCS)	No	Unknown	Unknown	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Programs				
U.S. Army Corps (USACE) Programs	No	Unknown	Unknown	No
Property, sales, income, or special purpose taxes	No	Unknown	Unknown	Unknown
Stormwater utility fee	No	Unknown	Unknown	Unknown
Fees for water, sewer, gas, or electric services	No	Unknown	Unknown	Unknown
Impact fees from new development and redevelopment	No	Unknown	Unknown	Unknown
General obligation or special purpose bonds	No	Unknown	Unknown	Unknown
Federally funded programs	No	Unknown	Unknown	Unknown
State-funded programs	Yes	Have received some state funds for flooding	Very helpful for responses to 911 flood calls	Unknown
Private sector or nonprofit programs	No	Unknown	Unknown	Unknown

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Other?				

Table 314: Financial Capabilities of the North View Fire District

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Capital Improvement Project Funding	No	Unknown	Unknown	Unknown
General Funds	No	Unknown	Unknown	Unknown
Hazard Mitigation Grant Program (HMGP/404)	No	Unknown	Unknown	No
Building Resilient Infrastructure & Communities (BRIC)	No	Unknown	Unknown	No
Flood Mitigation Assistance (FMA)	No	Unknown	Unknown	No
Public Assistance Mitigation (PA Mitigation/ 406)	No	Unknown	Unknown	No
Community	No	Unknown	Unknown	No

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Development Block Grant (CDBG)				
Natural Resources Conservation Services (NRCS) Programs	No	Unknown	Unknown	No
U.S. Army Corps (USACE) Programs	No	Unknown	Unknown	No
Property, sales, income, or special purpose taxes	Yes	Replacement of vehicles and payment of wages for personnel.	Yes	Yes
Stormwater utility fee	No	Unknown	Unknown	Unknown
Fees for water, sewer, gas, or electric services	No	Unknown	Unknown	Unknown
Impact fees from new development and redevelopment	Yes	Impact fees are used to pay for the new fire station in Pleasant View that was built near the wildland–urban interface.	Unknown	Unknown
General obligation or special purpose bonds	No	Unknown	Unknown	Unknown

Funding Resource	Do you have this?	How has it been used in the past?	Could it be used to fund future mitigation actions?	Can it be used as the local cost match for a federal grant?
Federally funded programs	No	Unknown	Unknown	Unknown
State-funded programs	No	Unknown	Unknown	Unknown
Private sector or nonprofit programs	No	Unknown	Unknown	Unknown
Other?				

Table 315 includes additional state and federal hazard mitigation funding opportunities the plan participants could consider pursuing.

Table 315: Mitigation Funding Sources

Funding Source	Description
Building Resilient Infrastructure and Communities (BRIC) Grant Program	Provides funding to states, local communities, tribes, and territories to implement mitigation projects. This program is designed to support capability- and capacity-building, promote partnerships, and enable large projects. It emphasizes nature-based solutions, community lifelines, and benefitting underserved communities. Each state has allocated funds, and there is a national competitive fund.
Community Navigator Program – Community Catalyst Fund (CCF)	CCF aims to strengthen community-serving organizations to increase capacity toward climate resilience. Priority is given to proposals that clearly articulate how the proposed project will increase support for frontline communities, as outlined by the Community Navigator Program, with efforts that align with provisions of the Bipartisan Infrastructure Law (BIL) and the Inflation Reduction Act (IRA). Furthermore, priority is given to proposals that clearly define plans to establish longer-term relationships and pathways with the USDA Forest Service for future work.

Funding Source	Description
Fire Management Assistance Grants (FMAG)	Available to state, local, and tribal governments for the mitigation, management, and control of fires on publicly or privately owned forests or grasslands.
Flood Mitigation Assistance (FMA)	Funding for cost-effective measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insured under the National Flood Insurance Program (NFIP).
Hazard Mitigation Grant Program (HMGP/404 Mitigation)	Provides funding to state, local, tribal, and territorial governments to develop hazard mitigation plans and implement mitigation products to reduce or eliminate future disaster losses. Eligible project types include planning and enforcement, flood protection, retrofitting, and construction. An approved hazard mitigation plan is required to receive funding.
HMGP Post Fire (HMGP-PF)	Helps communities implement hazard mitigation measures after wildfire disasters. Funding depends on the 10-year national average assistance provided under FMAG declarations for states.
National Flood Insurance Program (NFIP)	Eligible property owners, renters and businesses who purchase flood insurance through the NFIP may be eligible for funds to repair their property. Increased Cost of Compliance (ICC) benefits may be available for such activities as elevation, floodproofing, relocation, and demolition.
Post-Wildfire Assistance	After wildfire disasters, Post Fire assistance is available to help communities implement hazard mitigation measures.
Public Assistance 406 Program	Funds mitigation measures for disaster-damaged facilities. Limited to eligible counties and eligible damaged facilities and only the parts of the facility that are damaged. Designed to reduce the potential for losses from a similar disaster to the same eligible facility.
Rehabilitation of High Hazard Potential Dam (HHPD) Grant Program	Provides technical, planning, design, and construction assistance in the form of grants to rehabilitate eligible high hazard potential dams. The dam must be in a jurisdiction with a FEMA-approved plan that includes dam risks.
Small Business Administration	SBA mitigation assists with improving the home to help reduce the risk of future damage. Eligible improvements include but are not limited to wind, flood, wildfire, and earthquake mitigation.
US Army Corps of Engineers	US Army Corps of Engineers is an integral part of the permitting process and reducing risks to impacts to aquatic resources.

Funding Source	Description
US Department of Agriculture	USDA's priority is to help all producers, landowners, partners, and rural and Tribal communities tackle climate change. Implementing sustainable and climate-smart strategies to improve resilience.
US Environmental Protection Agency	According to EPA website, EPA is committed to protecting the environment and public health in low-income, tribal and other overburdened communities by integrating environmental justice in all programs, policies and activities.
US Housing and Urban Development (HUD) Community Development Block Grant (CDBG)	HUD's Mitigation (MIT) Program provides flexible grants to help local governments, states, and tribes mitigate the risk of future disasters, especially in low- and moderate-income areas, subject to the availability of supplemental appropriations.
Utah Watershed Restoration Initiative	Utah's Watershed Restoration Initiative (WRI) goal is to improve high priority watersheds throughout Utah.

Education and Outreach Capabilities

Regular engagement with the public on issues regarding hazard mitigation provides an opportunity to directly interface with community members. Assessing these outreach and education capabilities illustrates the connection between the government and community members, which opens a two-way dialogue that can create a more resilient community.

Table 316: Education and Outreach Capabilities of Weber County

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	Yes	Somewhat.	Used the County newsletter to distribute preparedness and response information for seasonal hazards. Subjects include awareness, actions to prepare, and how to avoid issues.
Hazard Awareness Campaigns	Yes	Yes	Partner with the National Weather Service in its programs, particularly for alerts and

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
(such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)			awareness campaigns.
Public meetings/ events	Yes	Yes.	Attend preparedness fairs, give out information at county fair and other events when possible. Information is about hazards, preparedness and actions individuals and families can take to mitigate the impacts of those hazards.
Emergency Management listserv	Yes	Yes	
Local news	Yes	As appropriate	Have a Public Information Officer and social media. The media follow those. The focus is usually on hazards happening at the time. Provide safety instructions, preparedness information, and actions to take, if appropriate for the message.
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	Yes	Yes	Distributed information this way in libraries and at different events and through email contacts and meeting distribution lists.
Insurance disclosures/ outreach	No	No	Many companies have stopped providing insurance for floods, and some for earthquakes. The County has not had the bandwidth to do that, but it provides preparedness information and guides which advise homeowner to investigate insurance options.
Organizations	Yes	Yes, as it is	There are links in the preparedness

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
that represent/ advocate for/ interact with underserved and vulnerable communities		available	information that is passed out at events and also on the County website. The Health and Human Services departments also work with groups on a regular basis. The jail staff work with other organizations to provide information to inmate when they are released, the homeless, and those with substance abuse.
Social media	Yes`	Yes	Social media are often used to provide preparedness information and current threat or safety information, as needed.
Other? (Please Describe)			

Table 317: Education and Outreach Capabilities of Farr West City

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	Yes	No	Can be incorporated
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes (Storm ready is in place)	Yes	
Public meetings/ events	No	No	
Emergency	Yes	No	

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Management listserv			
Local news	Yes	No	
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	Yes	No	
Insurance disclosures/ outreach	Unknown	No	
Organizations that represent/ advocate for/ interact with underserved and vulnerable communities	Unknown	Unknown	
Social media	Yes	Yes	
Other (?)			

Table 318: Education and Outreach Capabilities of the City of Harrisville

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	Yes	Yes	Newsletters inform the community about meetings or training related to City topics. including emergency management. The City has a thriving senior population, and this is

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
			the best way to communicate with this vulnerable population.
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	Yes	The City uses social media, the City website, and community boards to communicate hazard awareness campaigns. It participated in the Great Utah Shakeout, Drug Enforcement Agency drug takebacks, and high wind safety and preparation.
Public meetings/ events	Yes	Yes	The City hosts a monthly luncheon at which seniors plan topics they would like to hear about and City staff facilitate. Presentations have been on 72-hour kits, emergency contact lists, food storage, flood preparedness, winter weather preparedness, basic preparedness, and critical document kits.
Emergency Management listserv	No		
Local news	No		
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	Yes	Yes	Hard copies of notices and information are posted at three locations. They are used to inform residents of upcoming City meetings, public information updates, and upcoming training.
Insurance disclosures/ outreach	No		
Organizations that represent/ advocate for/	No		

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
interact with underserved and vulnerable communities			
Social media	Yes	Yes	The City uses Facebook and YouTube. Facebook is used to share messages about when meetings or training will be or to provide information about events like the Great Utah Shakeout.
Other? (Please Describe)			

Table 319: Education and Outreach Capabilities of the City of Hooper

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	Yes	Yes	Very limited. Not much about the emergency planning team, meetings, and events.
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	Yes	The City is sponsoring an emergency preparation fair in September 2024.
Public meetings/ events	Yes	Yes	Hold monthly emergency planning meetings and an annual emergency preparedness, health, and safety fair
Emergency Management	No		

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
listserv			
Local news	No		
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	Very limited		
Insurance disclosures/ outreach	Unknown		
Organizations that represent/ advocate for/ interact with underserved and vulnerable communities	Unknown		
Social media	Yes, a Facebook page	Yes	Use "TEXTMYGOV" to communicate with residents
Other? (Please Describe)			

Table 320: Education and Outreach Capabilities of the City of Huntsville

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	Yes	Yes	

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	Yes	
Public meetings/ events	Yes	Yes	Have had many meetings to teach emergency preparedness
Emergency Management listserv	Yes	Yes	Notices of meetings and hard copy materials for emergency preparedness
Local news	Yes	Yes	Newspaper prints notices of Emergency Preparedness meetings.
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	Yes	Yes	Have distributed hard copies of information about emergency preparation
Insurance disclosures/ outreach	Yes	Yes	
Organizations that represent/ advocate for/ interact with underserved and vulnerable communities	No	No	
Social media	Yes, Town	Yes	

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
	website		
Other? (Please Describe)	Yes, Town news-letter	Yes	

Table 321: Education and Outreach Capabilities of the City of Marriott–Slaterville

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	Yes	No	Can add to newsletter.
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No	No	
Public meetings/ events	Yes	Monthly emergency management. meeting.	
Emergency Management listserv	No		
Local news	Yes	Local reporters cover stories.	

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	Yes	No	
Insurance disclosures/ outreach	No	No	
Organizations that represent/ advocate for/ interact with underserved and vulnerable communities	Yes, local shelter and law enforcement	Yes	
Social media	Yes, City sites post notices and other information	Yes	
Other? (Please Describe)			

Table 322: Education and Outreach Capabilities of the City of North Ogden

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	Yes	Yes	Periodically an article is included for emergency preparedness
Hazard Awareness Campaigns (such as	No		

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)			
Public meetings/ events	Yes	No	
Emergency Management listserv	Yes	Yes	Coordination with Weber County Emergency Management and state Liaison Offer (LNO)
Local news	No		
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	Yes	No	
Insurance disclosures/ outreach	No		
Organizations that represent/ advocate for/ interact with underserved and vulnerable communities	Yes	Yes	Notices are posted at North View Senior Center.
Social media	Yes	Yes	Two Facebook pages periodically have posts.
Other? (Please Describe)			

Table 323: Education and Outreach Capabilities of the City of Ogden

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	Yes	Yes	Monthly newsletter included with utility bill. Monthly preparedness messages
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	Yes	Outreach to residents in wildland–urban interface area about wildfires and defensible spaces around their homes
Public meetings/ events	Yes	Yes	Community meetings when needed to inform residents, council meetings to inform all residents of projects.
Emergency Management listserv	No	N/A	
Local news	Yes	Yes	The communication team sends out press releases when appropriate to relay messages.
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	Yes	Yes	Used when needed to inform residents of public meetings and/or notices.
Insurance disclosures/ outreach	No	N/A	
Organizations that represent/ advocate for/ interact with	Yes	Yes	Work with diversity coordinator and outreach team to relay messages when appropriate.

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
underserved and vulnerable communities			
Social media	Yes	Yes	City social media sites and websites are updated with critical information when available.
Other? (Please Describe)			

Table 324: Education and Outreach Capabilities of the Ogden School District

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	Yes	No	
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	No	
Public meetings/ events	Yes	No	
Emergency Management listserv	Yes	No	

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Local news	No		
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	Yes	No	
Insurance disclosures/ outreach	No		
Organizations that represent/ advocate for/ interact with underserved and vulnerable communities	No		
Social media	Yes	No	X, Facebook, and Instagram
Other? (Please Describe)			

Table 325: Education and Outreach Capabilities of the City of Pleasant View

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	Yes	Yes	Information is provided regarding weather-related incidents, emergency preparedness, and the Community Emergency Response Team (CERT)
Hazard	Yes	Yes	Coordinate with Weber School District to run

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)			annual drills. Police and Public Works make presentations to school groups.
Public meetings/ events	Yes	No	Can discuss hazard mitigation with the public at monthly City Council meetings
Emergency Management listserv	No		
Local news	No		
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	Yes	Yes	Use door hanger notices for issues with water access, and social media and the City's website are used to inform residents. CERT is established City-wide to maintain physical contact with all residents in the City.
Insurance disclosures/ outreach	No		
Organizations that represent/ advocate for/ interact with underserved and vulnerable communities	Yes	Yes	CERT and City Youth Council
Social media	Yes	Yes	Use Facebook and website for various instances

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Other? (Please Describe)			

Table 326: Education and Outreach Capabilities of the City of Riverdale

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	Yes	Yes	Preparedness for wildfires, drought, severe weather, and the Community Emergency Response Team (CERT)
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No	N/A	N/A
Public meetings/ events	Yes, CERT	Yes	CERT meetings will be held three times a participate in the "Old Glory Days" event.
Emergency Management listserv	No	N/A	N/A
Local news	Yes	Notifies the population when a hazard or disaster requires evacuation	Press provides widespread notifications.

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	Yes	Flood mitigation and preparedness	Door to door with predictions of potential flooding in the riverbed.
Insurance disclosures/ outreach	No		
Organizations that represent/ advocate for/ interact with underserved and vulnerable communities	Yes	Unknown	Homeless shelter on the border of Riverdale and Ogden City
Social media	Yes	City Facebook	Notification of emergency planning
Other? (Please Describe)			

Table 327: Education and Outreach Capabilities of the City of Roy

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	Yes	Yes – but not a regular occurrence.	Monthly newsletter that goes out in utility billing. Monthly Preparedness messages.
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe	No		

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Weather Awareness Week, School Programs)			
Public meetings/ events	No		
Emergency Management listserv	No		
Local news	Yes	Yes – when necessary	The City Manager and PIO team send out press releases to relay messages.
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	No		
Insurance disclosures/ outreach	No		
Organizations that represent/ advocate for/ interact with underserved and vulnerable communities	No		
Social media	Yes	No – possibly if necessary	City socials and websites are updated with critical information when available.
Other? (Please Describe)			

Table 328: Education and Outreach Capabilities of the City of South Ogden

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	Yes		Monthly newsletters for South Ogden City
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes		Mostly social media pushes and newsletter campaigns
Public meetings/ events	Yes	Mostly personal hazard mitigation	Engaged with the local faith-based emergency management/ preparedness events
Emergency Management listserv	No		
Local news	No		
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	No		
Insurance disclosures/ outreach	No		
Organizations that represent/ advocate for/ interact with underserved	No		

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
and vulnerable communities			
Social media	Yes	Unknown	Facebook and Instagram
Other? (Please Describe)			

Table 329: Education and Outreach Capabilities of the City of Uintah

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	Yes	Yes	
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No		
Public meetings/ events	Yes	No	
Emergency Management listserv	No		
Local news	No		
Hard copies of	Yes	Yes	

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
notices (e.g., at public libraries, door-to-door outreach)			
Insurance disclosures/ outreach	No		
Organizations that represent/ advocate for/ interact with underserved and vulnerable communities	No		
Social media	Yes	Yes	Facebook and Instagram
Other? (Please Describe)	Text My Gov	No	

Table 330: Education and Outreach Capabilities of the City of Washington Terrace

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	Yes	Yes	Use the newsletter occasionally as a way to promote preparedness.
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week,	Yes	Yes	Use social media and work with other organizations to get information out in a timely manner when needed.

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
School Programs)			
Public meetings/ events	Yes	Yes	Work with local churches to teach and learn about how to work and combat natural disasters that might occur.
Emergency Management listserv	Unknown	Unknown	
Local news	Yes	Yes	Have contacts for local news outlets when information must be given out.
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	Yes	Yes	Use City employees or volunteers to hand out information when needed
Insurance disclosures/ outreach	Unknown	Unknown	
Organizations that represent/ advocate for/ interact with underserved and vulnerable communities	Unknown	Unknown	
Social media	Yes	Unknown	Facebook, Instagram, and other social media platforms.
Other? (Please Describe)			

Table 331: Education and Outreach Capabilities of the City of West Haven

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	Yes	Yes, it can.	
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No		Can be added to the Emergency Operations Plan
Public meetings/ events	Yes	Not currently	Meetings of the Planning Commission and City Council
Emergency Management listserv	No		Looking into this
Local news	Yes	Yes, it can.	
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	No		
Insurance disclosures/ outreach	No		
Organizations that represent/ advocate for/ interact with underserved and vulnerable	No		

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
communities			
Social media	Yes		Have a social media specialist
Other? (Please Describe)			

Table 332: Education and Outreach Capabilities of Plain City

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	Yes	Yes	
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No	N/A	
Public meetings/ events	Yes. City Council meetings, Planning Commission meetings	Yes	
Emergency Management listserv	No	N/A	

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Local news	Yes	Yes	
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	Yes	Yes	
Insurance disclosures/ outreach	Yes	Yes	
Organizations that represent/ advocate for/ interact with underserved and vulnerable communities	No	N/A	
Social media	Yes. Facebook & City Web page	Yes	
Other? (Please Describe)			

Table 333: Education and Outreach Capabilities of the Hooper Water Improvement District

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	Yes	No	

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	No	
Public meetings/ events	Yes	No	
Emergency Management listserv	Yes	No	
Local news	Yes	No	
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	Yes	No	
Insurance disclosures/ outreach	Yes	No	
Organizations that represent/ advocate for/ interact with underserved and vulnerable communities	Yes	No	
Social media	Yes	No	

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Other? (Please Describe)			

Table 334: Education and Outreach Capabilities of the Pineview Water System

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	No		
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No		
Public meetings/ events	No		
Emergency Management listserv	No		
Local news	No		
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	No		

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Insurance disclosures/ outreach	No		
Organizations that represent/ advocate for/ interact with underserved and vulnerable communities	No		
Social media	Yes (Facebook)		
Other? (Please Describe)			

Table 335: Education and Outreach Capabilities of the Roy Water Conservancy District

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	No		
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No		

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Public meetings/ events	Yes, our monthly board meeting	No	
Emergency Management listserv	No		
Local news	No		
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	No		
Insurance disclosures/ outreach	No		
Organizations that represent/ advocate for/ interact with underserved and vulnerable communities	No		
Social media	Yes, Facebook and X	No	
Other? (Please Describe)			

Table 336: Education and Outreach Capabilities of Taylor West Weber Water District

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	No		
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No		
Public meetings/ events	No		
Emergency Management listserv	No		
Local news	Yes	For information on boil orders if needed	
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	No		
Insurance disclosures/ outreach	No		
Organizations that represent/ advocate for/	No		

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
interact with underserved and vulnerable communities			
Social media	Yes Facebook		
Other? (Please Describe)	Webpage		

Table 337: Education and Outreach Capabilities of the Weber Morgan Health Department

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	Yes	Yes	
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	Yes	Air Aware month, Idle Free month, Septic week to raise awareness, Flu campaign, HOT and Cold day notices, NPIs, etc.
Public meetings/ events	Yes	Yes	Public Board of Health meetings are held monthly. They could incorporate hazard mitigation topics and strategies as needed
Emergency Management listserv	Yes	Yes	Emergency Services staff meets with and collaborates with multiple EMs within WM jurisdiction to discuss mitigation strategies.
Local news	Yes	Yes	HD has a PIO responsible for coordinating with new outlets

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	Yes	Yes	WMHD provides hard copy notices when needed, such as a boil order, non-pharmaceutical intervention, etc.
Insurance disclosures/ outreach	No		
Organizations that represent/ advocate for/ interact with underserved and vulnerable communities	Yes. WMHD employs community health workers and resource integration coaches that work with vulnerable populations to provide information and connect them to services	Yes	CHWs attend community event and disseminate all manner of public health and prevention information
Social media	Yes/ Website, Facebook, Instagram, X	Yes	Social media is used to promote public health and emergency preparedness information
Other? (Please Describe)			

Table 338: Education and Outreach Capabilities of the Weber School District

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community	Yes	No	

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
newsletter			
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	Yes	Emergency Preparedness Week
Public meetings/ events	Yes	No	
Emergency Management listserv	No	No	
Local news	No	No	
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	Yes	No	
Insurance disclosures/ outreach	Yes	Yes	
Organizations that represent/ advocate for/ interact with underserved and vulnerable communities	Yes	No	Have a Student Access Department
Social media	Yes	Yes	Facebook and Twitter
Other? (Please Describe)			

Table 339: Education and Outreach Capabilities of the West Warren–Warren Water Improvement District

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	Yes	Yes	Include a letter with the summer monthly bills that discusses water conservation, backflow devices, best practices with water, and keeping weeds mowed to reduce fire danger. The website also has different articles depending on the season for education on freezing pipes, water safety, fire safety, etc.
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	No		
Public meetings/ events	Yes	Yes	At monthly public board meetings, water conservation, backflow devices, best practices with water, and keeping weeds mowed to reduce fire danger are discussed.
Emergency Management listserv	No		
Local news	No		
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	Yes	Yes	Post fliers on church doors to help inform the community
Insurance disclosures/ outreach	Unsure		

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Organizations that represent/ advocate for/ interact with underserved and vulnerable communities	No		
Social media	Yes	Yes	Use the community Facebook page to post information on water conservation, backflow devices, best practices with water, keeping weeds mowed to reduce fire danger, community meetings, etc.
Other? (Please Describe)			

Table 340 Education and Outreach Capabilities of the Central Weber Sewer Improvement District

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community Newsletter(s)	N		
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	N		
Public Meetings/Events (Please Describe)	Yes	No	

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Emergency Management Listserv	N		
Local News	N		
Disturbing Hard Copies of Notices (e.g. public libraries, door-to-door outreach)	N		
Insurance Disclosures/Outreach	N		
Organizations that Represent/Advocate For/Interact with Underserved and Vulnerable Communities (Please Describe)	N		
Social Media (Please Describe)	Yes	No	Website
Other? (Please Describe)			

Table 341: Education and Outreach Capabilities of the Weber Fire District

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community	Yes	Yes	

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
newsletter			
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	Yes	
Public meetings/ events	Yes	Yes	
Emergency Management listserv	No		
Local news	Yes	Yes	
Hard copies of notices (e.g., at public libraries, door-to-door outreach)	No	Yes	
Insurance disclosures/ outreach	Yes	Unknown	
Organizations that represent/ advocate for/ interact with underserved and vulnerable communities	Yes	No	NAACP Ogden, Utah Black Roundtable, Diversity Charter Ogden

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Social media	Yes	Yes	Need a program that can translate messages
Other? (Please Describe)			

Table 342: Education and Outreach Capabilities of the North View Fire District

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
Community newsletter	No		
Hazard Awareness Campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, School Programs)	Yes	Yes	During Fire Prevention Week in October, the station is open to the public Share fire prevention information.
Public meetings/ events	Yes	No	Can discuss hazard mitigation with the public at monthly public board meetings
Emergency Management listserv	No		
Local news	No		
Hard copies of notices (e.g., at public libraries, door-to-door	No		

Education and Outreach Capability	Do you have this?	Does it incorporate hazard mitigation?	Notes
outreach)			
Insurance disclosures/ outreach	No		
Organizations that represent/ advocate for/ interact with underserved and vulnerable communities	No		
Social media	Yes	Yes	Post on social media when the District is helping with mitigation efforts.
Other? (Please Describe)			

Floodplain Management Capabilities

Flooding is the costliest natural hazard in the United States and, with the promulgation of recent federal regulation, homeowners throughout the country are experiencing increasingly high flood insurance premiums. Community participation in the NFIP opens up opportunity for additional grant funding associated specifically with flooding issues. Assessment of the jurisdictions' current NFIP status and compliance provides planners with a greater understanding of the local flood management program, opportunities for improvement, and available grant funding opportunities.

Special districts, such as school districts and fire districts are not eligible to participate in the NFIP, but they may support floodplain management and exist in communities that participate in the NFIP. Therefore, the tables for those participants are shorter than those for the County and the municipalities.

Table 343: Floodplain Management, Mapping, and Insurance for Weber County

Question	Response
Who is the floodplain manager? Is this their primary or secondary role?	Weber County Engineer/ Secondary
Does the floodplain manager have adequate training and capacity for their role? If not, what else is needed?	Yes
How does the community enforce its floodplain rules? Does enforcement include monitoring compliance and acting to correct violations?	Yes
When was the most recent floodplain management ordinance adopted?	Adopted 2013, Revised 2019
Does your community participate in the Community Rating System (CRS)? If so, describe the steps the community has taken to achieve the CRS goals.	Yes
Does the community's floodplain management ordinance include any higher standards? If so, please list.	Yes. An area along the Weber River Chanel from 1900 West bordered on the south by 1200 S extending to the Ogden Bay wildlife refuge requires a minimum of a 300-foot setback from the historical high water mark for permitting.
Who is responsible for permitting?	Weber County Engineering Office
How does the community issue development permits in the special flood hazard area?	There is a specific Flood Plain Permitting process codified in County ordinance.
Does the community maintain elevation certificates?	No
Does the community track the number of buildings in the special flood hazard area? If yes, are there any trends?	No
How many repetitive loss (RL) structures does the community have? (List number and type of structure)	Two single family residence both are classified as seasonal residences

Question	Response
How many severe repetitive loss (SRL) structures does the community have? (List number and type of structure)	None
Have any RL/SRL properties been mitigated since the last plan update?	One structure was demolished by the property owner.
Who is responsible for making substantial damage/substantial improvement determinations?	Weber County Engineering Office
How does the substantial damage/substantial improvement process work in your community?	Never been required
Is there sufficient staff and training to make substantial damage/substantial improvement determinations?	Yes
How are substantial damage/substantial improvement requirements messaged to the public before and after an event?	Multiple outreach processes can be used, including social media, traditional media, mailers, etc.
Have any substantially damaged/substantially improved structures been mitigated since the last plan update?	No
How will the community remain in compliance with the NFIP moving forward? (simply stating "the community will continue to comply with the NFIP" will not meet FEMA's planning requirements)	NFIP and flood plain designation/enforcement have been adopted in County ordinance.
How does the community support map change requests? This could be requests during the Risk MAP process or through Letters of Map Amendment or Revision	Requests for change are submitted through letters of amendment.
When did the latest FIRM become effective?	11/30/2023
When was the latest Flood Insurance Rate Map (FIRM) adopted?	In process
Is the FIRM and FIS report in an accessible location? How would the public get access to their flood map information?	County supported public-facing ESRI mapping site
Does the community use any Risk MAP products? If so, describe.	No

Question	Response
Does the community collect updated floodplain data or modeling? Is this shared with partners and with FEMA?	As updated by the state. This information is shared as requested.
How does the community educate the public on floodplain management and the availability of flood insurance, in and out of the floodplain?	Multiple informational resources available: website, public outreach fliers etc.
How familiar is the public with their flood insurance options?	Unknown
How many properties have flood insurance in the community?	51
Are there any areas where flood insurance is lacking?	No
Other comments?	

Farr West does not participate in the NFIP currently as they were sanctioned in 2006 and have no mapped Special Flood Hazard Areas. However, the community is interested in participating the program.

Table 344: Floodplain Management, Mapping, and Insurance for the City of Harrisville

Question	Response
Who is the floodplain manager? Is this their primary or secondary role?	Justin Shinsel. Secondary Role
Does the floodplain manager have adequate training and capacity for their role? If not, what else is needed?	No. Additional staffing.
How does the community enforce its floodplain rules? Does enforcement include monitoring compliance and acting to correct violations?	Yes. Yes. Any new development in a floodplain requires FEMA review. Floodplain areas and new development are inspected.
When was the most recent floodplain management ordinance adopted?	November 14, 2023

Question	Response
Does your community participate in the Community Rating System (CRS)? If so, describe the steps the community has taken to achieve the CRS goals.	No
Does the community's floodplain management ordinance include any higher standards? If so, please list.	No
Who is responsible for permitting?	Justin Shinsel
How does the community issue development permits in the special flood hazard area?	At time of new development.
Does the community maintain elevation certificates?	No
Does the community track the number of buildings in the special flood hazard area? If yes, are there any trends?	No
How many repetitive loss (RL) structures does the community have? (List number and type of structure)	None
How many severe repetitive loss (SRL) structures does the community have? (List number and type of structure)	None
Have any RL/SRL properties been mitigated since the last plan update?	No
Who is responsible for making substantial damage/substantial improvement determinations?	Building official
How does the substantial damage/substantial improvement process work in your community?	The building official sends a letter to the floodplain manager.
Is there sufficient staff and training to make substantial damage/substantial improvement determinations?	No
How are substantial damage/substantial improvement requirements messaged to the public before and after an event?	There is not a system in place.
Have any substantially damaged/substantially improved structures been mitigated since the last plan update?	None

Question	Response
How will the community remain in compliance with the NFIP moving forward? (simply stating "the community will continue to comply with the NFIP" will not meet FEMA's planning requirements)	Working with FEMA
How does the community support map change requests? This could be requests during the Risk MAP process or through Letters of Map Amendment or Revision	The City works with private engineers and developers to update the maps.
When did the latest FIRM become effective?	The current FIRM became effective 11/30/23.
When was the latest Flood Insurance Rate Map (FIRM) adopted?	2023
Is the FIRM and FIS report in an accessible location? How would the public get access to their flood map information?	Yes
Does the community use any Risk MAP products? If so, describe.	No
Does the community collect updated floodplain data or modeling? Is this shared with partners and with FEMA?	No
How does the community educate the public on floodplain management and the availability of flood insurance, in and out of the floodplain?	Information available at the main office and at public meetings
How familiar is the public with their flood insurance options?	The public has minimal knowledge of what their flood insurance options are.
How many properties have flood insurance in the community?	35
Are there any areas where flood insurance is lacking?	Yes
Other comments?	

Table 345: Floodplain Management, Mapping, and Insurance for the City of Hooper

Question	Response
Does the City of Hooper participate in the NFIP?	Hooper does not participate in the NFIP and does not have to profile NFIP the same way as the other participating jurisdictions.
Why does the community not participate in the NFIP?	April 2023, the State NFIP Coordinator provided resources on participation with City of Hooper community leadership.
Is the community interested in joining the NFIP?	Yes.

Table 346: Floodplain Management, Mapping, and Insurance for the City of Huntsville

Question	Response
Who is the floodplain manager? Is this their primary or secondary role?	Huntsville Planning Commission, Secondary role
Does the floodplain manager have adequate training and capacity for their role? If not, what else is needed?	No. Get training for the National Flood Insurance Program (NFIP)
How does the community enforce its floodplain rules? Does enforcement include monitoring compliance and acting to correct violations?	Zoning and Building Permits
When was the most recent floodplain management ordinance adopted?	April 2022
Does your community participate in the Community Rating System (CRS)? If so, describe the steps the community has taken to achieve the CRS goals.	No
Does the community's floodplain management ordinance include any higher standards? If so, please list.	No
Who is responsible for permitting?	Town Clerk and Sunrise Engineering

Question	Response
How does the community issue development permits in the special flood hazard area?	We have town ordinances to keep building away from flood zones. The FEMA flood zone map for Huntsville is Pineview Reservoir at its full level. The Army Corps of Engineers have also evaluated one of our new annexed developments and approved building away from wetlands.
Does the community maintain elevation certificates?	No
Does the community track the number of buildings in the special flood hazard area? If yes, are there any trends?	Yes. There is no increase in buildings and no residences.
How many repetitive loss (RL) structures does the community have? (List number and type of structure)	None
How many severe repetitive loss (SRL) structures does the community have? (List number and type of structure)	None
Have any RL/SRL properties been mitigated since the last plan update?	No
Who is responsible for making substantial damage/substantial improvement determinations?	Town Council/ Planning Commission
How does the substantial damage/substantial improvement process work in your community?	We have an emergency response plan we are implementing. It involves the entire community. After an event, we would inspect what happened and review our zoning and building approval process.
Is there sufficient staff and training to make substantial damage/substantial improvement determinations?	Yes
How are substantial damage/substantial improvement requirements messaged to the public before and after an event?	If needed, it would be put on the City's website, sent out in emails, and put it in the City's newsletter.

Question	Response
Have any substantially damaged/substantially improved structures been mitigated since the last plan update?	No
How will the community remain in compliance with the NFIP moving forward? (simply stating "the community will continue to comply with the NFIP" will not meet FEMA's planning requirements)	Planning Commission could get further training on NFIP.
How does the community support map change requests? This could be requests during the Risk MAP process or through Letters of Map Amendment or Revision	Have not actively done this
When did the latest FIRM become effective?	2016
When was the latest Flood Insurance Rate Map (FIRM) adopted?	2016
Is the FIRM and FIS report in an accessible location? How would the public get access to their flood map information?	Online through FEMA. Bureau of Reclamation maps and information are available at the town hall.
Does the community use any Risk MAP products? If so, describe.	Yes. Bureau of Reclamation maps for Pineview and Causey Reservoirs
Does the community collect updated floodplain data or modeling? Is this shared with partners and with FEMA?	The City uses the FEMA and Bureau of Reclamation mapping.
How does the community educate the public on floodplain management and the availability of flood insurance, in and out of the floodplain?	Past newsletters have offered informational sources.
How familiar is the public with their flood insurance options?	Not sure.
How many properties have flood insurance in the community?	Unknown
Are there any areas where flood insurance is lacking?	There are no residents in the floodplain.
Other comments?	

Table 347: Floodplain Management, Mapping, and Insurance for the City of Marriott–Slaterville

Question	Response
Who is the floodplain manager? Is this their primary or secondary role?	Community Service Director, quaternary
Does the floodplain manager have adequate training and capacity for their role? If not, what else is needed?	No, time and expense
How does the community enforce its floodplain rules? Does enforcement include monitoring compliance and acting to correct violations?	Through a strict floodplain ordinance. Yes
When was the most recent floodplain management ordinance adopted?	November 2023
Does your community participate in the Community Rating System (CRS)? If so, describe the steps the community has taken to achieve the CRS goals.	No
Does the community's floodplain management ordinance include any higher standards? If so, please list.	Yes, prohibits all development in the floodplain
Who is responsible for permitting?	Community Service & Development departments
How does the community issue development permits in the special flood hazard area?	Unknown
Does the community maintain elevation certificates?	unknown
Does the community track the number of buildings in the special flood hazard area? If yes, are there any trends?	Unknown
How many repetitive loss (RL) structures does the community have? (List number and type of structure)	unknown
How many severe repetitive loss (SRL) structures does the community have? (List number and type of structure)	unknown
Have any RL/SRL properties been mitigated since the last plan update?	unknown

Question	Response
Who is responsible for making substantial damage/substantial improvement determinations?	City Building Official
How does the substantial damage/substantial improvement process work in your community?	unknown
Is there sufficient staff and training to make substantial damage/substantial improvement determinations?	No
How are substantial damage/substantial improvement requirements messaged to the public before and after an event?	Unknown
Have any substantially damaged/substantially improved structures been mitigated since the last plan update?	unknown
How will the community remain in compliance with the NFIP moving forward? (simply stating "the community will continue to comply with the NFIP" will not meet FEMA's planning requirements)	By actively managing encroachment on floodplain and known hazard areas under the umbrella of NFIP stipulations.
How does the community support map change requests? This could be requests during the Risk MAP process or through Letters of Map Amendment or Revision	If a Letter of Map Amendment (LOMA) or Letter of Map Revision (LOMR) is approved, the City also adopts that change.
When did the latest FIRM become effective?	The current FIRM became effective 11/30/23.
When was the latest Flood Insurance Rate Map (FIRM) adopted?	11/2023
Is the FIRM and FIS report in an accessible location? How would the public get access to their flood map information?	Yes. Ask at the City office or look it up on the Flood Maps viewer website.
Does the community use any Risk MAP products? If so, describe.	No
Does the community collect updated floodplain data or modeling? Is this shared with partners and with FEMA?	No

Question	Response
How does the community educate the public on floodplain management and the availability of flood insurance, in and out of the floodplain?	Floodplain areas are discussed as people inquire about property uses.
How familiar is the public with their flood insurance options?	Unknown
How many properties have flood insurance in the community?	Seven
Are there any areas where flood insurance is lacking?	unknown
Other comments?	

Table 348: Floodplain Management, Mapping, and Insurance for the City of North Ogden

Question	Response
Who is the floodplain manager? Is this their primary or secondary role?	Eric Casperson, City Engineer, secondary
Does the floodplain manager have adequate training and capacity for their role? If not, what else is needed?	Yes
How does the community enforce its floodplain rules? Does enforcement include monitoring compliance and acting to correct violations?	Staff recommendations to City Planning Commission/City Council, zoning ordinances
When was the most recent floodplain management ordinance adopted?	2021
Does your community participate in the Community Rating System (CRS)? If so, describe the steps the community has taken to achieve the CRS goals.	Yes, ordinance changes recommended to City Council due to map updates
Does the community's floodplain management ordinance include any higher standards? If so, please list.	No
Who is responsible for permitting?	Building Official

Question	Response
How does the community issue development permits in the special flood hazard area?	Permits are issued depending on the building code requirements for the specified section of the floodplain
Does the community maintain elevation certificates?	No.
Does the community track the number of buildings in the special flood hazard area? If yes, are there any trends?	No
How many repetitive loss (RL) structures does the community have? (List number and type of structure)	Unknown
How many severe repetitive loss (SRL) structures does the community have? (List number and type of structure)	Unknown
Have any RL/SRL properties been mitigated since the last plan update?	Unknown
Who is responsible for making substantial damage/substantial improvement determinations?	City building inspectors
How does the substantial damage/substantial improvement process work in your community?	City building inspectors can red tag building if were dangerous
Is there sufficient staff and training to make substantial damage/substantial improvement determinations?	Yes
How are substantial damage/substantial improvement requirements messaged to the public before and after an event?	Through public meetings and notices and posts on social media sites
Have any substantially damaged/substantially improved structures been mitigated since the last plan update?	Unknown
How will the community remain in compliance with the NFIP moving forward? (simply stating "the community will continue to comply with the NFIP" will not meet FEMA's planning requirements)	Will conduct ordinance updates according to map updates. Additional necessary training will

Question	Response
	be attended by floodplain manager
How does the community support map change requests? This could be requests during the Risk MAP process or through Letters of Map Amendment or Revision	Through staff recommendation to City Council and Council approval
When did the latest FIRM become effective?	The current FIRM became effective 11/30/23.
When was the latest Flood Insurance Rate Map (FIRM) adopted?	2023
Is the FIRM and FIS report in an accessible location? How would the public get access to their flood map information?	Yes, online through FEMA
Does the community use any Risk MAP products? If so, describe.	No
Does the community collect updated floodplain data or modeling? Is this shared with partners and with FEMA?	No
How does the community educate the public on floodplain management and the availability of flood insurance, in and out of the floodplain?	Through social media posts and public notices
How familiar is the public with their flood insurance options?	Not very familiar
How many properties have flood insurance in the community?	29
Are there any areas where flood insurance is lacking?	No
Other comments?	

Table 349: Floodplain Management, Mapping, and Insurance for the City of Ogden

Question	Response
Who is the floodplain manager? Is this their primary or secondary role?	Taylor Nielsen is the flood plain engineer for Ogden City. His primary position in the city is an Engineer and the floodplain manager is his secondary role.
Does the floodplain manager have adequate training and capacity for their role? If not, what else is needed?	Yes
How does the community enforce its floodplain rules? Does enforcement include monitoring compliance and acting to correct violations?	The community enforces its floodplain rules through regular inspections, permit reviews, and compliance checks. Enforcement includes monitoring compliance and taking corrective actions for any violations identified.
When was the most recent floodplain management ordinance adopted?	The most recent floodplain management ordinance was adopted in 2023.
Does your community participate in the Community Rating System (CRS)? If so, describe the steps the community has taken to achieve the CRS goals.	No, but the City are working toward adopting changes to apply to the program.
Does the community's floodplain management ordinance include any higher standards? If so, please list.	Requiring freeboard (additional elevation above the base flood elevation) for new constructions. Prohibiting development in certain high-risk flood zones. Mandating flood-resistant building materials and construction techniques.
Who is responsible for permitting?	Engineering and Planning
How does the community issue development permits in the special flood hazard area?	Development permits in special flood hazard areas are issued after thorough review to ensure compliance with floodplain management regulations, including elevation requirements and mitigation measures.

Question	Response
Does the community maintain elevation certificates?	Yes, the community maintains elevation certificates for structures in the special flood hazard area.
Does the community track the number of buildings in the special flood hazard area? If yes, are there any trends?	Unknown
How many repetitive loss (RL) structures does the community have? (List number and type of structure)	Unknown
How many severe repetitive loss (SRL) structures does the community have? (List number and type of structure)	Unknown
Have any RL/SRL properties been mitigated since the last plan update?	Unknown
Who is responsible for making substantial damage/substantial improvement determinations?	Following a major incident, all departments are tasked with a variety of duties as stated in our EOP. For example, Public Works will do dashboard assessments of all public ways, Fire and Police will do dashboard assessments in their respective districts for life safety and critical infrastructures hazards, Engineering and Code Enforcement will assess damaged structures, and all departments will report back to the EOC so Planning can have all information to allocate resources.
How does the substantial damage/substantial improvement process work in your community?	Unknown
Is there sufficient staff and training to make substantial damage/substantial improvement determinations?	Unknown

Question	Response
How are substantial damage/substantial improvement requirements messaged to the public before and after an event?	Unknown
Have any substantially damaged/substantially improved structures been mitigated since the last plan update?	Unknown
How will the community remain in compliance with the NFIP moving forward? (simply stating "the community will continue to comply with the NFIP" will not meet FEMA's planning requirements)	The community will remain in compliance by: • Continuously updating floodplain management plans and ordinances. • Ensuring regular training for staff involved in floodplain management. • Conducting public education and outreach on flood risks and mitigation. • Maintaining accurate and up-to-date floodplain maps and data. Collaborating with state and federal agencies to ensure alignment with NFIP requirements.
How does the community support map change requests? This could be requests during the Risk MAP process or through Letters of Map Amendment or Revision	The community supports map change requests by: • Reviewing and processing applications for Letters of Map Amendment (LOMA) and Letters of Map Revision (LOMR). • Providing technical assistance to property owners and developers. Coordinating with FEMA and other relevant agencies during the Risk MAP process.
When did the latest FIRM become effective?	The current FIRM became effective on November 30, 2023.
When was the latest Flood Insurance Rate Map (FIRM) adopted?	The latest FIRM was adopted on November 30, 2023.
Is the FIRM and FIS report in an accessible location? How would the public get access to their flood map information?	Yes, the FIRM and FIS report are available on the City's website. The public can access flood map information through the City's website or by visiting the permit counter.

Question	Response
Does the community use any Risk MAP products? If so, describe.	Yes, the community uses Risk MAP products for: • Identifying and assessing flood risks. • Enhancing floodplain management and mitigation planning. Improving community resilience to flood hazards.
Does the community collect updated floodplain data or modeling? Is this shared with partners and with FEMA?	Yes, the community collects updated floodplain data and modeling, which is shared with local, state, and federal partners, including FEMA.
How does the community educate the public on floodplain management and the availability of flood insurance, in and out of the floodplain?	Unknown
How familiar is the public with their flood insurance options?	The public is generally familiar with flood insurance options, but ongoing education and outreach efforts are necessary to ensure comprehensive understanding.
How many properties have flood insurance in the community?	73
Are there any areas where flood insurance is lacking?	Unknown
Other comments?	

Table 350: Questions about Floodplain Management for the Ogden City School District

Question	Response
What communities does your special district operate in? Are you aware of any flood concerns in these communities?	The District operates in Ogden City. There are flood risks in some areas near some schools, including residential areas that house stakeholders.

Question	Response
Which of your assets are at-risk of flooding? List any of your structures in the high-risk flood zone if known, or list addresses and the IEM team will check on https://msc.fema.gov/portal/home.	There are no school buildings in flood risk areas according to https://msc.fema.gov/portal/home
Is your organization involved in floodplain management? If so, how?	Not directly involved in floodplain management. However, facilities may serve as temporary shelters for flood victims in the vicinity.

Table 351: Floodplain Management, Mapping, and Insurance for the City of Pleasant View

Question	Response
Who is the floodplain manager? Is this their primary or secondary role?	Amey Mabey City Administrator, secondary role
Does the floodplain manager have adequate training and capacity for their role? If not, what else is needed?	Yes
How does the community enforce its floodplain rules? Does enforcement include monitoring compliance and acting to correct violations?	Floodplain rules are enforced through application of City ordinances, with enforcement including monitored compliance and acting to correct violations.
When was the most recent floodplain management ordinance adopted?	1975
Does your community participate in the Community Rating System (CRS)? If so, describe the steps the community has taken to achieve the CRS goals.	No
Does the community's floodplain management ordinance include any higher standards? If so, please list.	No
Who is responsible for permitting?	Building Inspector

Question	Response
How does the community issue development permits in the special flood hazard area?	Through on-site inspections by the Building Inspector
Does the community maintain elevation certificates?	Yes, for properties with specific grades in specific zones of the city.
Does the community track the number of buildings in the special flood hazard area? If yes, are there any trends?	Yes. No noted trends
How many repetitive loss (RL) structures does the community have? (List number and type of structure)	None
How many severe repetitive loss (SRL) structures does the community have? (List number and type of structure)	None
Have any RL/SRL properties been mitigated since the last plan update?	None
Who is responsible for making substantial damage/substantial improvement determinations?	Development Review Committee (DRC), including Building Inspector
How does the substantial damage/substantial improvement process work in your community?	Yes
Is there sufficient staff and training to make substantial damage/substantial improvement determinations?	Yes
How are substantial damage/substantial improvement requirements messaged to the public before and after an event?	Social media, City Website, CERT volunteers
Have any substantially damaged/substantially improved structures been mitigated since the last plan update?	No
How will the community remain in compliance with the NFIP moving forward? (simply stating "the community will continue to comply with the NFIP" will not meet FEMA's planning requirements)	The Development Review Committee (DRC), including Building Inspector will conduct ordinance updates according to map

Question	Response
	updates. Additional necessary training will be attended by floodplain manager.
How does the community support map change requests? This could be requests during the Risk MAP process or through Letters of Map Amendment or Revision	Through requests during the Risk MAP process
When did the latest FIRM become effective?	11/30/23.
When was the latest Flood Insurance Rate Map (FIRM) adopted?	Plain City Code 10-18-18.5 (Amending city zoning Title 10 Chapter 18 Section 18 12/7/23.
Is the FIRM and FIS report in an accessible location? How would the public get access to their flood map information?	Yes, this is available online.
Does the community use any Risk MAP products? If so, describe.	None
Does the community collect updated floodplain data or modeling? Is this shared with partners and with FEMA?	None has been collected to date but we're happy to collect and share this with partners as needed in the future.
How does the community educate the public on floodplain management and the availability of flood insurance, in and out of the floodplain?	Social media and City website.
How familiar is the public with their flood insurance options?	Moderately
How many properties have flood insurance in the community?	19
Are there any areas where flood insurance is lacking?	No
Other comments?	

Table 352: Floodplain Management, Mapping, and Insurance for the City of Riverdale

Question	Response
Who is the floodplain manager? Is this their primary or secondary role?	Community Development Director; Secondary
Does the floodplain manager have adequate training and capacity for their role? If not, what else is needed?	Yes
How does the community enforce its floodplain rules? Does enforcement include monitoring compliance and acting to correct violations?	Through ordinances passed by local government
When was the most recent floodplain management ordinance adopted?	October 23, 2023
Does your community participate in the Community Rating System (CRS)? If so, describe the steps the community has taken to achieve the CRS goals.	No
Does the community's floodplain management ordinance include any higher standards? If so, please list.	No
Who is responsible for permitting?	Michael Marigoni
How does the community issue development permits in the special flood hazard area?	Planning Commission Approval
Does the community maintain elevation certificates?	No
Does the community track the number of buildings in the special flood hazard area? If yes, are there any trends?	Yes, and No
How many repetitive loss (RL) structures does the community have? (List number and type of structure)	None
How many severe repetitive loss (SRL) structures does the community have? (List number and type of structure)	None

Question	Response
Have any RL/SRL properties been mitigated since the last plan update?	No
Who is responsible for making substantial damage/substantial improvement determinations?	Building Inspector
How does the substantial damage/substantial improvement process work in your community?	Substantial damage is determined by the building inspector. Improvements go through the City government.
Is there sufficient staff and training to make substantial damage/substantial improvement determinations?	Yes
How are substantial damage/substantial improvement requirements messaged to the public before and after an event?	Social Media and Printed Information
Have any substantially damaged/substantially improved structures been mitigated since the last plan update?	No
How will the community remain in compliance with the NFIP moving forward? (simply stating "the community will continue to comply with the NFIP" will not meet FEMA's planning requirements)	Ongoing review of ordinances and collection of data for future flooding potential in the community.
How does the community support map change requests? This could be requests during the Risk MAP process or through Letters of Map Amendment or Revision	Letters of Map Amendment
When did the latest FIRM become effective?	11/30/23.
When was the latest Flood Insurance Rate Map (FIRM) adopted?	In process
Is the FIRM and FIS report in an accessible location? How would the public get access to their flood map information?	County supported public-facing ESRI mapping site
Does the community use any Risk MAP products? If so, describe.	No

Question	Response
Does the community collect updated floodplain data or modeling? Is this shared with partners and with FEMA?	Collected and shared
How does the community educate the public on floodplain management and the availability of flood insurance, in and out of the floodplain?	There currently is no education platform to educate the community on floodplain or insurance.
How familiar is the public with their flood insurance options?	Minimal
How many properties have flood insurance in the community?	28
Other comments?	

Table 353: Floodplain Management, Mapping, and Insurance for the City of Roy

Question	Response
Who is the floodplain manager? Is this their primary or secondary role?	Steve Parkinson, this is his secondary role
Does the floodplain manager have adequate training and capacity for their role? If not, what else is needed?	Yes
How does the community enforce its floodplain rules? Does enforcement include monitoring compliance and acting to correct violations?	We review permits to identify if they are in the floodplain and ensure they meet minimum standards if so. Development is minimal.
When was the most recent floodplain management ordinance adopted?	November 2023
Does your community participate in the Community Rating System (CRS)? If so, describe the steps the community has taken to achieve the CRS goals.	No
Does the community's floodplain management ordinance include any higher standards? If so, please list.	Yes – 1 foot of freeboard

Question	Response
Who is responsible for permitting?	Community Development – Building Department and Planning review permits.
How does the community issue development permits in the special flood hazard area?	Along with building permits
Does the community maintain elevation certificates?	No
Does the community track the number of buildings in the special flood hazard area? If yes, are there any trends?	Yes
How many repetitive loss (RL) structures does the community have? (List number and type of structure)	None
How many severe repetitive loss (SRL) structures does the community have? (List number and type of structure)	None
Have any RL/SRL properties been mitigated since the last plan update?	No
Who is responsible for making substantial damage/substantial improvement determinations?	Building Department would be responsible.
How does the substantial damage/substantial improvement process work in your community?	When a disaster event is reported, the Building Department is responsible for going out and assessing the building. They would attempt to connect with the homeowners directly.
Is there sufficient staff and training to make substantial damage/substantial improvement determinations?	No
How are substantial damage/substantial improvement requirements messaged to the public before and after an event?	Unknown
Have any substantially damaged/substantially improved structures been mitigated since the last plan update?	No

Question	Response
How will the community remain in compliance with the NFIP moving forward? (simply stating "the community will continue to comply with the NFIP" will not meet FEMA's planning requirements)	Unknown
How does the community support map change requests? This could be requests during the Risk MAP process or through Letters of Map Amendment or Revision	The community supports map change requests by: • Reviewing and processing applications for Letters of Map Amendment (LOMA) and Letters of Map Revision (LOMR). • Providing technical assistance to property owners and developers. • Coordinating with FEMA and other relevant agencies during the Risk MAP process.
When did the latest FIRM become effective?	11/30/23.
When was the latest Flood Insurance Rate Map (FIRM) adopted?	11/30/23.
Is the FIRM and FIS report in an accessible location? How would the public get access to their flood map information?	Yes, call or stop in
Does the community use any Risk MAP products? If so, describe.	No
Does the community collect updated floodplain data or modeling? Is this shared with partners and with FEMA?	Yes, Yes
How does the community educate the public on floodplain management and the availability of flood insurance, in and out of the floodplain?	unknown
How familiar is the public with their flood insurance options?	Unknown
How many properties have flood insurance in the community?	Nine

Question	Response
Are there any areas where flood insurance is lacking?	No
Other comments?	

Table 354: Floodplain Management, Mapping, and Insurance for the City of South Ogden

Question	Response
Who is the floodplain manager? Is this their primary or secondary role?	Jon Andersen; Public Works Director, secondary role.
Does the floodplain manager have adequate training and capacity for their role? If not, what else is needed?	No, additional staffing/time.
How does the community enforce its floodplain rules? Does enforcement include monitoring compliance and acting to correct violations?	It is not currently enforced. Should the need arise, the city will implement enforcement measures through routine inspections, public education, and collaboration with local, state, and federal agencies. This includes monitoring developments in designated flood zones and ensuring that all construction or land use in these areas meet NFIP standards to reduce flood risk and ensure community safety.
When was the most recent floodplain management ordinance adopted?	November 7, 2023, Ordinance #23-20 was adopted by South Ogden City Council revising and amending Title 8, Chapter 5 to provide for compliance with FEMA floodplain management requirements

Question	Response
Does your community participate in the Community Rating System (CRS)? If so, describe the steps the community has taken to achieve the CRS goals.	No
Does the community's floodplain management ordinance include any higher standards? If so, please list.	No
Who is responsible for permitting?	Jon Andersen & Jason Brennan
How does the community issue development permits in the special flood hazard area?	Contact public works for the permit (pretty much built out)
Does the community maintain elevation certificates?	Unknown
Does the community track the number of buildings in the special flood hazard area? If yes, are there any trends?	No – built out
How many repetitive loss (RL) structures does the community have? (List number and type of structure)	None
How many severe repetitive loss (SRL) structures does the community have? (List number and type of structure)	None
Have any RL/SRL properties been mitigated since the last plan update?	No
Who is responsible for making substantial damage/substantial improvement determinations?	City Manager & City Engineer
How does the substantial damage/substantial improvement process work in your community?	The Public Works director will be responsible for assessing structures post-disaster and working with the City Manager/City Engineer to make SD/SI determinations as needed.
Is there sufficient staff and training to make substantial damage/substantial improvement determinations?	No

Question	Response
How are substantial damage/substantial improvement requirements messaged to the public before and after an event?	PIO, Social Media, potential direct contact
Have any substantially damaged/substantially improved structures been mitigated since the last plan update?	No
How will the community remain in compliance with the NFIP moving forward? (simply stating "the community will continue to comply with the NFIP" will not meet FEMA's planning requirements)	Education of staff and the public as the City move forward
How does the community support map change requests? This could be requests during the Risk MAP process or through Letters of Map Amendment or Revision	Meetings, reviews, input to committees
When did the latest FIRM become effective?	11/30/23.
When was the latest Flood Insurance Rate Map (FIRM) adopted?	11/07/2023
Is the FIRM and FIS report in an accessible location? How would the public get access to their flood map information?	City website and county website
Does the community use any Risk MAP products? If so, describe.	No
Does the community collect updated floodplain data or modeling? Is this shared with partners and with FEMA?	No
How does the community educate the public on floodplain management and the availability of flood insurance, in and out of the floodplain?	Unknown
How familiar is the public with their flood insurance options?	Unknown
How many properties have flood insurance in the community?	13
Are there any areas where flood insurance is lacking?	Unknown

Question	Response
Other comments?	

Table 355: Floodplain Management, Mapping, and Insurance for the City of Uintah

Question	Response
Who is the floodplain manager? Is this their primary or secondary role?	Mayor Cutler
Does the floodplain manager have adequate training and capacity for their role? If not, what else is needed?	No. Any kind of training would be beneficial.
How does the community enforce its floodplain rules? Does enforcement include monitoring compliance and acting to correct violations?	Title 11 Flood Control, (chapter 1 Statutory Authorization, Findings Of Fact, Purpose And Methods (amlegal.com)) **11-1-4: METHODS OF REDUCING FLOOD LOSSES:** A. In order to accomplish its purposes, this title uses the following methods: 1. Restrict or prohibit uses that are dangerous to health, safety, or property in times of flood, or cause excessive increases in flood heights or velocities; 2. Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction; 3. Control the alteration of natural floodplains, stream channels and natural protective barriers, which are involved in the

Question	Response
	accommodation of floodwaters; 4. Control filling, grading, dredging and other development which may increase flood damage; and 5. Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands. (Ord. 226-15, 4-7-2015)
When was the most recent floodplain management ordinance adopted?	June 1, 2021
Does your community participate in the Community Rating System (CRS)? If so, describe the steps the community has taken to achieve the CRS goals.	Yes, the City refer to the County floodplain map. Depending on the risk level, the City proceeds with that risk criteria.
Does the community's floodplain management ordinance include any higher standards? If so, please list.	No
Who is responsible for permitting?	Jeff Monroe, Building Inspector
How does the community issue development permits in the special flood hazard area?	The City issues permits depending on the risk. An ordinance forbids issuing permits when there is severe risk.
Does the community maintain elevation certificates?	Yes
Does the community track the number of buildings in the special flood hazard area? If yes, are there any trends?	The City is aware of the number of buildings in the flood hazard area.

Question	Response
How many repetitive loss (RL) structures does the community have? (List number and type of structure)	None
How many severe repetitive loss (SRL) structures does the community have? (List number and type of structure)	None
Have any RL/SRL properties been mitigated since the last plan update?	No
Who is responsible for making substantial damage/substantial improvement determinations?	Jeff Monroe/Matt Harvingsten
How does the substantial damage/substantial improvement process work in your community?	Jeff Monroe would conduct an inspection and assess the damage.
Is there sufficient staff and training to make substantial damage/substantial improvement determinations?	Depending on the amount of damage, probably not.
How are substantial damage/substantial improvement requirements messaged to the public before and after an event?	Once "text my gov" is implemented, the City will be able to send out messaging. The City would post notices after an event.
Have any substantially damaged/substantially improved structures been mitigated since the last plan update?	No
How will the community remain in compliance with the NFIP moving forward? (simply stating "the community will continue to comply with the NFIP" will not meet FEMA's planning requirements)	Will assess the changes and add them to ordinances, if needed.
How does the community support map change requests? This could be requests during the Risk MAP process or through Letters of Map Amendment or Revision	If maps are not available, they are referred to the County.
When did the latest FIRM become effective?	06/02/2015

Question	Response
When was the latest Flood Insurance Rate Map (FIRM) adopted?	6/02/2015
Is the FIRM and FIS report in an accessible location? How would the public get access to their flood map information?	Unknown
Does the community use any Risk MAP products? If so, describe.	No
Does the community collect updated floodplain data or modeling? Is this shared with partners and with FEMA?	No
How does the community educate the public on floodplain management and the availability of flood insurance, in and out of the floodplain?	The building inspector informs about new builds or additions.
How familiar is the public with their flood insurance options?	Unknown
How many properties have flood insurance in the community?	Three
Are there any areas where flood insurance is lacking?	Unknown
Other comments?	

Table 356: Floodplain Management, Mapping, and Insurance for the City of Washington Terrace

Question	Response
Who is the floodplain manager? Is this their primary or secondary role?	Shane Taggart Jones and Associates and/or Washington Terrace Public Works Director
Does the floodplain manager have adequate training and capacity for their role? If not, what else is needed?	Yes
How does the community enforce its floodplain rules? Does enforcement include monitoring compliance and acting to correct violations?	The City has no significant threats of flooding. The community enforces its floodplain rules through a combination of zoning regulations and building codes. Although the risk of flooding is minimal, the

Question	Response
	City still ensures compliance with these regulations to maintain overall safety and preparedness. Enforcement includes monitoring compliance with established guidelines and taking corrective actions if violations occur. This involves regular inspections and reviews of new construction and development projects to ensure that they meet the necessary standards. If violations are identified, the City works with property owners to rectify the issues promptly.
When was the most recent floodplain management ordinance adopted?	2009?
Does your community participate in the Community Rating System (CRS)? If so, describe the steps the community has taken to achieve the CRS goals.	Yes, there are no ratings for the City.
Does the community's floodplain management ordinance include any higher standards? If so, please list.	No
Who is responsible for permitting?	Jones and Associates or Washington Terrace Public Works Director
How does the community issue development permits in the special flood hazard area?	Unknown
Does the community maintain elevation certificates?	Unknown
Does the community track the number of buildings in the special flood hazard area? If yes, are there any trends?	Unknown
How many repetitive loss (RL) structures does the community have? (List number and type of structure)	None

Question	Response
How many severe repetitive loss (SRL) structures does the community have? (List number and type of structure)	None
Have any RL/SRL properties been mitigated since the last plan update?	Unknown
Who is responsible for making substantial damage/substantial improvement determinations?	Jones And Associates or Washington Terrace Public Works Director
How does the substantial damage/substantial improvement process work in your community?	unknown
Is there sufficient staff and training to make substantial damage/substantial improvement determinations?	Yes
How are substantial damage/substantial improvement requirements messaged to the public before and after an event?	Unknown
Have any substantially damaged/substantially improved structures been mitigated since the last plan update?	unknown
How will the community remain in compliance with the NFIP moving forward? (simply stating "the community will continue to comply with the NFIP" will not meet FEMA's planning requirements)	To ensure ongoing compliance with NFIP, the City will implement the following strategies: 1. **Regular Training and Education:** Provide continuous training for City staff and officials on NFIP requirements and updates. Conduct workshops and informational sessions for the community to raise awareness about floodplain management and compliance. 2. **Ongoing Monitoring and Inspections:** Conduct regular inspections and monitoring of construction projects and developments to ensure adherence to NFIP regulations. Implement a tracking system for permits and compliance checks.

Question	Response
	3. **Public Outreach and Engagement:** Engage with residents and property owners through outreach programs, informing them about the importance of NFIP compliance and how they can contribute. Use newsletters, social media, and community meetings to disseminate information. 4. **Updating Plans and Ordinances:** Regularly review and update local floodplain management ordinances and plans to align with NFIP requirements. Ensure that the Emergency Operations Plan (EOP) and other relevant documents reflect current standards and practices. 5. **Adopting Best Practices:** Incorporate best practices in floodplain management and mitigation into local planning and development processes. This includes using FEMA data and tools to assess and reduce flood risks.
How does the community support map change requests? This could be requests during the Risk MAP process or through Letters of Map Amendment or Revision	unknown
When did the latest FIRM become effective?	11/30/23.
When was the latest Flood Insurance Rate Map (FIRM) adopted?	In process
Is the FIRM and FIS report in an accessible location? How would the public get access to their flood map information?	County supported public-facing ESRI mapping site
Does the community use any Risk MAP products? If so, describe.	GIS
Does the community collect updated floodplain data or modeling? Is this shared with partners and with FEMA?	Unknown

Question	Response
How does the community educate the public on floodplain management and the availability of flood insurance, in and out of the floodplain?	Unknown
How familiar is the public with their flood insurance options?	Unknown
How many properties have flood insurance in the community?	Zero
Are there any areas where flood insurance is lacking?	N/A
Other comments?	

Table 357: Floodplain Management, Mapping, and Insurance for the City of West Haven

Question	Response
Who is the floodplain manager? Is this their primary or secondary role?	City Engineer – Ed Mignone Additional Role
Does the floodplain manager have adequate training and capacity for their role? If not, what else is needed?	Yes
How does the community enforce its floodplain rules? Does enforcement include monitoring compliance and acting to correct violations?	By Ordinance. The ordinance clearly outlines our floodplain zones as defined to the Army Corps of Engineers. The ordinance clearly states, "There are no permitted uses within the floodplain zones." Yes, Code Enforcement monitors development in city, reports non-compliance, and issues stop work orders, if necessary.

Question	Response
When was the most recent floodplain management ordinance adopted?	2024
Does your community participate in the Community Rating System (CRS)? If so, describe the steps the community has taken to achieve the CRS goals.	No
Does the community's floodplain management ordinance include any higher standards? If so, please list.	No
Who is responsible for permitting?	City Engineer and Building Official
How does the community issue development permits in the special flood hazard area?	No development plans for floodplain area. Engineer reviews all permit requests to ensure no overlapping into the floodplain zones.
Does the community maintain elevation certificates?	Yes
Does the community track the number of buildings in the special flood hazard area? If yes, are there any trends?	No
How many repetitive loss (RL) structures does the community have? (List number and type of structure)	None
How many severe repetitive loss (SRL) structures does the community have? (List number and type of structure)	None
Have any RL/SRL properties been mitigated since the last plan update?	No
Who is responsible for making substantial damage/substantial improvement determinations?	Building Official

Question	Response
How does the substantial damage/substantial improvement process work in your community?	Code and building officials identify, issue a stop work order, and convene a strategic meeting with the DPW, City engineer and city manager.
Is there sufficient staff and training to make substantial damage/substantial improvement determinations?	Yes
How are substantial damage/substantial improvement requirements messaged to the public before and after an event?	unknown
Have any substantially damaged/substantially improved structures been mitigated since the last plan update?	None
How will the community remain in compliance with the NFIP moving forward? (simply stating "the community will continue to comply with the NFIP" will not meet FEMA's planning requirements)	Internal reviews
How does the community support map change requests? This could be requests during the Risk MAP process or through Letters of Map Amendment or Revision	Internal reviews
When did the latest FIRM become effective?	11/30/23.
When was the latest Flood Insurance Rate Map (FIRM) adopted?	In process
Is the FIRM and FIS report in an accessible location? How would the public get access to their flood map information?	County supported public-facing ESRI mapping site
Does the community use any Risk MAP products? If so, describe.	No
Does the community collect updated floodplain data or modeling? Is this shared with partners and with FEMA?	Provided by county agency

Question	Response
How does the community educate the public on floodplain management and the availability of flood insurance, in and out of the floodplain?	None currently
How familiar is the public with their flood insurance options?	Unknown
How many properties have flood insurance in the community?	15
Are there any areas where flood insurance is lacking?	Unknown
Other comments?	

Table 358: Questions about Floodplain Management for Plain City

Question	Response
Who is the floodplain manager? Is this their primary or secondary role?	Daniel Schuler Secondary role
Does the floodplain manager have adequate training and capacity for their role? If not, what else is needed?	Somewhat
How does the community enforce its floodplain rules? Does enforcement include monitoring compliance and acting to correct violations?	Plain City Flood Management Prevention Ordinance 10-18-18-5 (https://codelibrary.amlegal.com/codes/plaincityut/latest/plaincity_ut/0-0-0-10158) Planning Commission, Engineering and Public Works Director goes over plan reviews for new builds, checking for sensitive lands in the process before any approvals are given to build.
When was the most recent floodplain management ordinance adopted?	Plain City Code 10-18-18.5 (Amending city zoning title 10 chapter 18 section 18, Dated 12/7/2023

Question	Response
Does your community participate in the Community Rating System (CRS)? If so, describe the steps the community has taken to achieve the CRS goals.	No
Does the community's floodplain management ordinance include any higher standards? If so, please list.	No
Who is responsible for permitting?	Daniel Schuler, Trent M, Brad Jensen
How does the community issue development permits in the special flood hazard area?	10-18-18: High Water Table, Wetland And Floodplain Area Development Standards: A. Development in high water table, floodplain or wetland areas shall be subject to the following standards: 1. Floodplain, wetland areas and natural drainages shall not be included as part of any buildable development unless allowed to be mitigated pursuant to applicable law. Lots within the residential or agricultural zones may include wetlands and flood zones as part of the lot provided there is sufficient buildable area to accommodate the proposed use. 2. Wetlands and floodplain areas may not be included in area requirements for lots or for calculation of density. 3. Where determined by the planning commission or designee, wetland and floodplain areas may be required to be fenced if found to be detrimental to public health, safety, or welfare. 4. Prior to the acceptance by the city of a petition for rezoning of property in the

Question	Response
	designated area, or before the submission of an application for preliminary development plan in the designated area, it must be demonstrated to the satisfaction of the city engineer, public works director and planning commission that the conditions and requirements contained herein can be met. Such petition, submission, or application shall be made through the city. A predevelopment conference with the planning commission and developer shall be required to review any proposed plans. 5. Prior to acceptance by the city of an application for preliminary development plan in the specified areas, it must be demonstrated to the satisfaction of the city, (IBC) International Building Code (Section 1612) including appendix G - Relates to construction in flood hazard aeras, and the plain city Flood Damage Prevention Ordinance, that all conditions specified in the listed chapters have been fully met and accomplished. 6. Surface or subsurface drainage from any development within the subject area shall be transported to either a canal, creek or river and shall not be deposited, collected, or stored upon the property being developed or upon other properties within the subject area. 7. Drainage water from the proposed new development will not be placed upon or pass-through other properties, except:

Question	Response
	a. Where a preexisting drainage system of adequate capacity is legally available for use; or b. Where a permanent drainage easement of a size sufficient to carry projected flows has been obtained and a statement from the owners of both the host and guest properties recorded on property deeds in the office of the county recorder specifying the following: (1) That the city will be held harmless from all damages or injury resulting from water pollution and flooding from drainage crossing said property. (2) That the property owner will allow the owner of the easement to enter onto said property to maintain the drainage facility on said easement. (3) That the drainage channel can be placed in a pipe or culvert at such time as deemed appropriate by the owner of the easement. 8. Drainage from the proposed new development will not be placed in an irrigation ditch or irrigation canal, originally constructed for irrigation purposes, except where permission, in written and recorded instruments (i.e., easements) running with the land, has been granted by the subject irrigation company and/or all water users below the proposed development on the specific ditch or canal specifying the following: a. That the city will be held harmless from all damage

Question	Response
	or injury resulting from flooding, water pollution, or high ground-water from drainage in the ditch or canal. b. That the irrigation ditch or canal can be placed in a pipe or culvert at a time deemed necessary by the owner of the easement. (1) That the owner(s) of property which is the subject of a development plan may be required to provide, and record with the county recorder, a statement holding the city harmless from all damage within the project resulting from flooding or high-water table. (2) That a disclosure statement may be required to be placed upon all subdivision and development plans in the subject area, stating that the subdivision or development lots are in an area potentially subject to flooding from high water table. (3) That drainage easements be granted to the city within the proposed development, as determined by the city engineer, and drainage facilities be installed as part of the development at developer's expense. 9. No building shall be allowed to be constructed in a high-water table or floodplain areas of the city where the building proposed to be built includes a basement. A basement shall be considered as any usable floor area below either the elevation of the fronting curb and gutter, or if there is no

Question	Response
	curb and gutter planned to be constructed, usable floor area below the existing ground surface. The following conditions must be met: a. Prior to the issuance of the building permit, the owner(s) shall produce a statement which shall be recorded in the office of the county recorder and attached to the property stating that the city will be held harmless from all damages or injury resulting from flooding from groundwater in an identified high-water table or floodplain area. b. Prior to the issuance of any building permit for a structure/residence with a basement within a new development, the developer shall submit to the city engineer for approval, a design that has been signed and stamped by a registered professional engineer indicating his or her method to minimize flooding from groundwater. Each lot owner may also still be required to produce a statement which shall be recorded in the office of the county recorder and attached to the property stating that the city will be held harmless from all damages or injury resulting from flooding from groundwater or existing water ways. 10. A comprehensive drainage and grading plan shall be submitted by the developer of any property within a high-water table, floodplain or wetland area and shall be approved by the city engineer, public works

Question	Response
	director and planning commission before preliminary development approval or approval for any residential, commercial or industrial development or building on a single lot or lots. In the case of subdivisions, such a plan shall be submitted via the city engineer; or in the case of building development on a single lot or lots, the plan shall be submitted via the building inspector. Such plan shall be subject to the following requirements: a. Pumps shall not be discharged into the sanitary sewer system; but shall require outfall into a storm drain or private ditch system, if permitted by the owners thereof. Approval of, and signatures by; all irrigation and canal companies if their ditches or canals cross the development areas, or if surface or subsurface drainage is to outfall into the ditch or canal or if modification to ditch or canal is proposed. Property owners should be aware that few ditch companies allow discharge into their systems. b. Quantities of runoff shall be determined for the complete development area by the rational method or other method as approved by the city engineer. c. At all outfall points from the development, quantities of runoff shall comply as approved by the city engineer.

Question	Response
	d. The capacity of any irrigation ditch, storm drain, or other channel shall be determined from the inlet point to the outfall point of said channel if it is to be used for runoff. If there is insufficient capacity to handle added flows, it will not be used. e. A topographic map with updated wetlands and floodplain areas, if applicable shall be prepared to indicate sufficient slopes in all areas to take surface drainage and overflow waters into the designated street or storm drain. Water will not be allowed to pond any place other than a designated detention or retention basin. f. No building permit shall be issued in any development in the described area until the required subsurface and storm drainage system has been constructed and is in operable condition unless a hold harmless agreement is entered into by the developer. (Ord. 2013-04, 4-18-2013, eff. 4-19-2013)
Does the community maintain elevation certificates?	Unknown
Does the community track the number of buildings in the special flood hazard area? If yes, are there any trends?	Unknown
How many repetitive loss (RL) structures does the community have? (List number and type of structure)	None
How many severe repetitive loss (SRL) structures does the community have? (List number and type of structure)	None

Question	Response
Have any RL/SRL properties been mitigated since the last plan update?	Unknown
Who is responsible for making substantial damage/substantial improvement determinations?	Engineering, Building Official
How does the substantial damage/substantial improvement process work in your community?	If an event accrued, the mayor would consult with the city attorney for legal advice and trust insurance if needed. City crews would go out and assess the damage and report back to the mayor.
Is there sufficient staff and training to make substantial damage/substantial improvement determinations?	Unknown
How are substantial damage/substantial improvement requirements messaged to the public before and after an event?	Unknown
Have any substantially damaged/substantially improved structures been mitigated since the last plan update?	Unknown
How will the community remain in compliance with the NFIP moving forward? (simply stating "the community will continue to comply with the NFIP" will not meet FEMA's planning requirements)	Will assess the changes and add them to ordinances, if needed.
How does the community support map change requests? This could be requests during the Risk MAP process or through Letters of Map Amendment or Revision	Unknown
When did the latest FIRM become effective?	11/30/23
When was the latest Flood Insurance Rate Map (FIRM) adopted?	11/30/2023

Question	Response
Is the FIRM and FIS report in an accessible location? How would the public get access to their flood map information?	Unknown
Does the community use any Risk MAP products? If so, describe.	Unknown
Does the community collect updated floodplain data or modeling? Is this shared with partners and with FEMA?	Unknown
How does the community educate the public on floodplain management and the availability of flood insurance, in and out of the floodplain?	Unknown
How familiar is the public with their flood insurance options?	Unknown
How many properties have flood insurance in the community?	Unknown
Are there any areas where flood insurance is lacking?	Unknown
Other comments?	

Table 359: Questions about Floodplain Management for Central Weber Sewer Improvement District

Question	Response
What communities does your special district operate in? Are you aware of any flood concerns in these communities?	Weber County, Ogden, Marriott-Slaterville, Farr West, Plain City, North Ogden, Pleasant View, Harrisville, Hooper, South Ogden, South Weber, Washington Terrace, Riverdale, Roy, and West Haven.
Which of your assets are at-risk of flooding? List any of your structures in the high-risk flood zone if known, or list addresses and the IEM team will check on https://msc.fema.gov/portal/home.	None
Is your organization involved in floodplain management? If so, how?	No

Table 360: Questions about Floodplain Management for Hooper Water Improvement District

Question	Response
What communities does your special district operate in? Are you aware of any flood concerns in these communities?	Hooper City, West Point City, West Haven City, Roy, Unincorporated Davis County
Which of your assets are at-risk of flooding? List any of your structures in the high-risk flood zone if known, or list addresses and the IEM team will check on https://msc.fema.gov/portal/home.	None
Is your organization involved in floodplain management? If so, how?	No

Table 361: Questions about Floodplain Management for Pineview Water System

Question	Response
What communities does your special district operate in? Are you aware of any flood concerns in these communities?	Weber County & Box Elder County. There is always flood concerns during wet winters and possible heavy rains
Which of your assets are at-risk of flooding? List any of your structures in the high-risk flood zone if known, or list addresses and the IEM team will check on https://msc.fema.gov/portal/home.	Ogden River, Ogden Brigham Canal
Is your organization involved in floodplain management? If so, how?	No

Table 362: Questions about Floodplain Management for Roy Water Conservancy District

Question	Response
What communities does your special district operate in? Are you aware of any flood concerns in these communities?	Roy, Riverdale, Hooper, and West Haven. I am not aware of any flood concerns in these communities.
Which of your assets are at-risk of flooding? List any of your	Not aware of any assets that are

Question	Response
structures in the high-risk flood zone if known, or list addresses and the IEM team will check on https://msc.fema.gov/portal/home.	at-risk for flooding.
Is your organization involved in floodplain management? If so, how?	No

Table 363: Questions about Floodplain Management for the Taylor West Weber Water District

Question	Response
What communities does your special district operate in? Are you aware of any flood concerns in these communities?	West Haven, Hooper, Unincorporated Weber County, Marriott-Slaterville
Which of your assets are at-risk of flooding? List any of your structures in the high-risk flood zone if known, or list addresses and the IEM team will check on https://msc.fema.gov/portal/home.	Not aware of any assets that are at-risk for flooding
Is your organization involved in floodplain management? If so, how?	No

Table 364: Questions about Floodplain Management for the Weber Morgan Health Department

Question	Response
What communities does your special district operate in? Are you aware of any flood concerns in these communities?	Weber and Morgan Counties have identified flood maps. We would look to the counties for mitigation activities.
Which of your assets are at-risk of flooding? List any of your structures in the high-risk flood zone if known, or list addresses and the IEM team will check on https://msc.fema.gov/portal/home.	Not aware of any assets that are at-risk for flooding.
Is your organization involved in floodplain management? If so, how?	No

Table 365: Questions about Floodplain Management for Weber School District:

Question	Response
What communities does your special district operate in? Are you aware of any flood concerns in these communities?	Weber County and all cities in Weber County. Yes, there are flood concerns related to the Ogden and Weber Rivers.
Which of your assets are at-risk of flooding? List any of your structures in the high-risk flood zone if known, or list addresses and the IEM team will check on https://msc.fema.gov/portal/home.	School buildings and properties. No structures are in high-risk flood zones.
Is your organization involved in floodplain management? If so, how?	No

Table 366: Questions about Floodplain Management for West Warren–Warren Water Improvement District

Question	Response
What communities does your special district operate in? Are you aware of any flood concerns in these communities?	West Warren and Warren. The region has a high water table.
Which of your assets are at-risk of flooding? List any of your structures in the high-risk flood zone if known, or list addresses and the IEM team will check on https://msc.fema.gov/portal/home.	District building, pump stations 7740 W 900 S. and pumps on 1150 S and 5900 W.
Is your organization involved in floodplain management? If so, how?	No

Table 367: Questions about Floodplain Management for Weber Fire District

Question	Response
What communities does your special district operate in? Are you aware of any flood concerns in these communities?	There is one station (65) in a potential flood area, and there is a plan to divert water.
Which of your assets are at-risk of flooding? List any of your structures in the high-risk flood zone if known, or list addresses and the IEM team will check on	Station 65 in Huntsville

Question	Response
https://msc.fema.gov/portal/home.	
Is your organization involved in floodplain management? If so, how?	The District checks on the County and its cities to review flood control plans and offer input and resources.

Table 368: Questions about Floodplain Management for North View Fire District

Question	Response
What communities does your special district operate in? Are you aware of any flood concerns in these communities?	North Ogden, Pleasant View and Harrisville. Minimal flood concerns in these 3 communities.
Which of your assets are at-risk of flooding? List any of your structures in the high-risk flood zone if known, or list addresses and the IEM team will check on https://msc.fema.gov/portal/home.	The District's two stations are not in the floodplain maps.
Is your organization involved in floodplain management? If so, how?	The District coordinates with City staff to ensure that development is limited in the floodplains.

Opportunities to Expand and Improve Capabilities

Both pre- and post-disaster mitigation capabilities change over time. The intent of this Mitigation Plan is to evaluate current mitigation capabilities and identify gaps which could be addressed. The capability assessments of the County and its partners included discussions of capabilities which could be expanded upon. County items, such as increasing funding for community education and outreach, including translated materials and funding regional planning and coordination, serve as examples of what this looks like. Each participant's challenges or limitations have been stated in its respective capabilities section.

Planning and Regulation Capabilities to Expand or Improve

- **Weber County:** The County maintains a good relationship with our planning department and economic development director already. The engineering department works with them to address any risks they see that could affect growth and development.

- **City of Farr West:** Opportunities to expand knowledge of how plans relate to mitigation/hazard risk. Opportunities to expand knowledge of current plans and when the plans were last updated to provide information for the Emergency Manager as a potential mitigation action/way to improve capability by being informed of what they have and areas where they can integrate information across planning mechanisms.
- **City of Harrisville:** Hiring a full-time city planner would be a good way to improve planning and regulations. Having a dedicated person to assist with regulations and planning of new construction or development would be very beneficial.
- **City of Hooper:** Increase stormwater impact fees to adequately fund stormwater management. Opportunities to expand knowledge of how plans relate to mitigation/hazard risk. Opportunities to expand knowledge of current plans and when the plans were last updated to provide information for the Emergency Manager as a potential mitigation action/way to improve capability by being informed of what they have and areas where they can integrate information across planning mechanisms.
- **City of Huntsville:** There are zoning ordinances to limit building in the floodplain. Any future zoning or ordinance changes will consider pre mitigation policies.
- **City of Marriott–Slaterville:** There should be better collaboration between City departments. Opportunities to expand knowledge of how plans relate to mitigation / hazard risk.
- **City of North Ogden:** Solicit community input on ordinance changes ahead of City Council votes. Opportunities to expand knowledge of how plans relate to mitigation/hazard risk. Opportunities to expand knowledge of current plans and when the plans were last updated to provide information for the Emergency Manager as a potential mitigation action/way to improve capability by being informed of what they have and areas where they can integrate information across planning mechanisms.
- **City of Ogden:** Improve on planning and regulations in possible flooding areas and housing that impacts water demand. Opportunities to expand knowledge of how plans relate to mitigation/hazard risk. Opportunities to expand knowledge of current plans and when the plans were last updated to provide information for the Emergency Manager as a potential mitigation action/way to improve capability by being informed of what they have and areas where they can integrate information across planning mechanisms.
- **Ogden City School District:** The District relies on Weber County and Ogden City GIS operations to fulfill the needs for mapping (e.g., school boundary maps).
- **City of Plain City:** One way the city can expand mitigation capabilities is to update the Land Use Plan to include additional hazard information and hazard-informed land use planning. The opportunity to improve would be to have everyone involved in the planning process obtain and become familiar with the new sensitive land use ordinance Chapter 18.
- **City of Pleasant View:** Developing specific areas where hazard mitigation is addressed and quickly referable. Taking into consideration mitigation planning as new growth is experienced throughout the City.
- **City of Riverdale:** Education for governing bodies. Opportunities to expand knowledge of how plans relate to mitigation/hazard risk. Opportunities to expand knowledge of current plans and when the

plans were last updated to provide information for the Emergency Manager as a potential mitigation action/way to improve capability by being informed of what they have and areas where they can integrate information across planning mechanisms.

- **City of Roy:** The city could incorporate mitigation considerations and vulnerabilities into the Housing and Transportation plans. Opportunities to expand knowledge of how plans relate to mitigation/ hazard risk.
- **City of South Ogden:** South Ogden will complete this by incorporating the following into the newest update of South Ogden City's Local Emergency Operations Plan (LEOP):
  - Local rules and regulations will be updated to support these strategies:
    - Homes in wildfire-prone areas will be required to use fire-resistant materials.
    - Knox Boxes and Knox eLock systems will be installed at businesses to allow emergency responders quicker access during disasters.
    - Public education efforts will be increased to ensure residents understand the importance of mitigation.
    - Awareness campaigns will be launched to help residents prepare for specific hazards by securing their homes and creating emergency plans.
    - The agreement with South Weber Fire Department will be formalized to improve emergency response times, particularly along I-84, enhancing regional cooperation during disasters.
    - A schedule will be established for regularly reviewing and updating the LEOP to keep pace with new risks and evolving best practices for mitigation.
    - Opportunities to expand knowledge of how plans relate to mitigation/hazard risk.
    - Opportunities to expand knowledge of current plans and when the plans were last updated to provide information for the Emergency Manager as a potential mitigation action/way to improve capability by being informed of what they have and areas where they can integrate information across planning mechanisms.
- **City of Uintah:** Working on updating the general plan to include hazard information. Opportunities to expand knowledge of how plans relate to mitigation/hazard risk.
- **City of Washington Terrace:**

1. **Enhanced Community Engagement:**
   a. **Opportunity:** Increase community involvement in the planning process by organizing more frequent public workshops and forums. Use online platforms for broader participation and feedback collection.
   b. **Improvement:** Leads to more comprehensive and inclusive planning, ensuring that community needs and concerns are adequately addressed.
   c. **Challenges:** Requires additional resources and coordination to organize and facilitate these engagements effectively.

2. **Regular Review and Update of Plans and Ordinances:**
    a. **Opportunity:** Implement a systematic review and update schedule for local ordinances related to floodplain management and other relevant regulations. Opportunities to expand knowledge of how plans relate to mitigation/hazard risk. Opportunities to expand knowledge of current plans and when the plans were last updated to provide information for the Emergency Manager as a potential mitigation action/way to improve capability by being informed of what they have and areas where they can integrate information across planning mechanisms.
    b. **Improvement:** Ensures that regulations remain current with federal and state requirements and evolving best practices.
    c. **Challenges:** May require increased staffing or consultancy services to conduct thorough reviews and implement necessary changes.
3. **Integration of Advanced GIS Technology:**
    a. **Opportunity:** Use advanced GIS technology for better floodplain mapping and risk assessment.
    b. **Improvement:** Enhances the accuracy and efficiency of planning and regulatory enforcement, providing more detailed data for decision making.
    c. **Challenge:** Requires investment in technology and training for staff to effectively use GIS tools.
4. **Strengthening Interagency Collaboration:**
    a. **Opportunity:** Foster stronger collaboration with regional, state, and federal agencies to align local planning and regulatory efforts with broader initiatives.
    b. **Improvement:** Leads to more cohesive and comprehensive planning strategies, leveraging external expertise and resources.
    c. **Challenges:** Coordination across different agencies can be complex and time-consuming, requiring dedicated effort to build and maintain relationships.
5. **Streamlining Permit Processes:**
    a. **Opportunity:** Simplify and expedite the permit approval processes related to floodplain management and development regulations.
    b. **Improvement:** Reduces administrative burdens for both the City and applicants, promoting compliance and efficient implementation of projects.
    c. **Challenge:** Needs careful balancing to maintain thoroughness and compliance while speeding up the process.

- **City of West Haven**: Include plan in the EOP and update regularly

- **Central Weber Sewer Improvement District:** Incorporate risk factors into the Master Plan, including strategies like redundant process equipment. Continually look for ways to improve the process for emergency response readiness.
- **Hooper Water Improvement District:** Yes. Expanding our capital improvement plan to address reducing hazard risks.
- **Pineview Water System:** Additional mitigation projects could be included in the updated Capital Improvement Plan when it is updated.
- **Roy Water Conservancy District:** Improve our rules and regulations by updating them with information regarding RWCD's rules and regulations as it relates to proper water usage during drought and what to do in a natural disaster such as an earthquake.
- **Taylor West Weber Water District:** We can improve by reviewing regulations and plans more frequently and putting together committees for each. These committees can help mitigate potential hazards by overseeing precise categories. For example, one committee will oversee funding while another will oversee community training and another SCADA updating and cybersecurity.
- **Weber Morgan Health Department:** Environmental Health adopts state statute and regulation and makes amendments specific to Weber/Morgan counties as needed
- **Weber School District:** The district has a strategic plan called Elevate 28, which addresses specific areas related to emergency management and safety. The plan could be expanded to include additional hazards such as risks related to natural disasters such as earthquakes.
- **West Warren–Warren Water Improvement District:** Planning for future infrastructure, including water storage tanks, looping of lines, fire hydrants, emergency planning and systems in the district boundaries
- **Weber Fire District:** Develop a community-based action plan and prevention plan. Expand CERT training.
- **North View Fire District:** Incorporate wildfire mitigation in the General Plan and Strategic Plan.

Administrative and Technical Capabilities to Expand or Improve

Weber County:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures.
- The County can begin to maintain elevation certificates, Track the number of buildings in the special flood hazard area and identify any trends. In addition, develop a process for substantial damage/substantial improvement and provide the public with information on flood insurance options.

Farr West

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures.

- Opportunities to expand/improve understanding of how technical capabilities have been used to assess/mitigate risk in the past and used to assess/mitigate risk in the future.

City of Harrisville:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures. An opportunity to expand would be to increase training for staff members in mitigation practices. This would include Emergency Management, Public Works, City Planning, the City Council, and the Planning Commission.
- Opportunities to expand/improve understanding of how technical capabilities have been used to assess/mitigate risk in the past and used to assess/mitigate risk in the future.

City of Hooper:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures. More training for staff on Hazard mitigation. What to do in the event of a hazard.
- Opportunities to expand/improve understanding of how technical capabilities have been used to assess/mitigate risk in the past and used to assess/mitigate risk in the future.

City of Huntsville:

- Involve administrative people more fully in emergency preparedness plans and continue to update GIS maps.
- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures.
- Opportunities to expand/improve understanding of how technical capabilities have been used to assess/mitigate risk in the past and used to assess/mitigate risk in the future.

City of Marriott–Slaterville:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures.
- Opportunities to expand/improve understanding of how technical capabilities have been used to assess/mitigate risk in the past and used to assess/mitigate risk in the future.

City of North Ogden:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures.
- Better use of all resources such as GIS in mitigation efforts.
- Opportunities to expand/improve understanding of how technical capabilities have been used to assess/mitigate risk in the past and used to assess/mitigate risk in the future.

City of Ogden:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures. Improve by adding more positions to help with administrative duties and adding technical experts.
- Opportunities to expand/improve understanding of how technical capabilities have been used to assess/mitigate risk in the past and used to assess/mitigate risk in the future.

Ogden City School District:

- Annual state allocation for salary of a risk mitigation and planning expert (working directly for the school district or for the state with oversight of the district) could potentially expand and improve risk mitigation.

City of Plain City:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures.
- One-way Plain City could expand this capability is by getting additional support for the emergency manager and more training opportunities for staff.

City of Pleasant View:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures.
- Communication and coordination with staff.

City of Riverdale:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures.

City of Roy:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures.
- The city could pursue additional mitigation training, including from the Emergency Management Institute, for the Emergency Manager.

City of South Ogden:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures.
- Moving forward, the city will focus on strengthening administrative and technical capabilities by addressing key needs such as staffing and training. One specific initiative will be to secure additional staff and provide enhanced training for both existing and new personnel to better implement and manage floodplain regulations. By expanding the staff and ensuring that they are properly trained in floodplain management, emergency response coordination, and hazard mitigation practices, the city will more effectively enforce regulations and improve resilience against potential flooding. This will also include updating procedures to ensure compliance with state and federal standards, while

equipping staff with the technical skills necessary to manage these responsibilities efficiently. This approach will enhance the city's ability to manage flood risks and provide a more robust administrative framework for disaster mitigation and planning in the future.

City of Uintah:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures.
- Will be implementing permitting software in the next budget year.

City of Washington Terrace:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures.

1. **Enhanced Training Programs for Staff:**
    a. **Opportunity:** Develop and implement comprehensive training programs for City staff on the latest administrative and technical practices in floodplain management and emergency response.
    b. **Improvement:** Ensures that staff are well-equipped with the knowledge and skills necessary to effectively manage and respond to flood-related issues.
    c. **Challenges:** Requires allocation of time and resources for training and may necessitate hiring external experts for specialized training sessions.
2. **Upgrading Technical Infrastructure:**
    a. **Opportunity:** Invest in modernizing the City's technical infrastructure, including updating software and hardware used for floodplain mapping, data analysis, and communications systems.
    b. **Improvement:** Improves the efficiency and accuracy of data management and enhances the City's ability to respond to emergencies.
    c. **Challenges:** Significant financial investment is needed, and there may be a learning curve associated with new technologies.
3. **Establishing a Dedicated Floodplain Management Team:**
    a. **Opportunity:** Create a specialized team focused solely on floodplain management, including planning, compliance, and response activities.
    b. **Improvement:** Allows for more focused and expert management of floodplain-related issues, leading to better preparedness and mitigation efforts.
    c. **Challenges:** Requires additional funding and staffing and may necessitate restructuring existing departments to accommodate the new team.
4. **Implementing a Centralized Data Management System:**
    a. **Opportunity:** Develop a centralized data management system that integrates all floodplain-

related data, including mapping, permits, inspections, and compliance records.

b. **Improvement:** Facilitates easier access to and sharing of information among departments, improving coordination and decision making.

c. **Challenges:** Needs investment in software development and data migration, and staff will require training to use the new system effectively.

5. **Improving Public Communications Systems:**

a. **Opportunity:** Enhance public communications systems to provide timely and accurate information to residents about flood risks, emergency procedures, and regulatory changes.

b. **Improvement:** Ensures that the community is well-informed and prepared, reducing the potential impact of flood events.

c. **Challenges:** Maintaining consistent and effective communications channels can be resource-intensive and ensuring the clarity and reach of messages can be difficult.

6. **Expanding Use of Remote Sensing and Monitoring Technologies:**

a. **Opportunity:** Use remote sensing technologies, such as drones and satellite imagery, for real-time monitoring and assessment of floodplain areas.

b. **Improvement:** Provides up-to-date information on flood conditions, aiding in swift decision making and response.

c. **Challenges:** Requires investment in technology and training, and there may be regulatory hurdles related to the use of drones and other technologies.

City of West Haven:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures.
- Share written plan with Executive administrators and directors of the City. Review and discuss plans with administration, elected officials, and department heads.

Central Weber Sewer Improvement District:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures.
- Regularly attend emergency planning meetings with the Local Emergency Planning Committee. Participate in training and exercises with the local Fire District.

Hooper Water Improvement District:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures.
- Training on grant writing specific to hazard mitigation.

Pineview Water System:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures.
- Additional training on mitigation for the Civil Engineer. We have just hired a GIS person to help with our current needs. We hire only those to fill the present need with very little outlook for the future.

Roy Water Conservancy District:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures.
- Improve our technical specifications by updating them with information regarding meters and how to ensure the proper operation of meters.

Taylor West Weber Water District:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures.
- As growth occurs, we are expanding our needs administratively and technically to keep up with growth. We plan to continue our education towards mitigating potential hazards. Each staff member will be assigned to teach about the potential hazard they are assigned to.

Weber Morgan Health Department:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures.
- Utah CODE 26-A gives authority to HD in certain incidents such as outbreaks and pandemics. We have software and programs connected to DHHS and DEQ for quick communication in areas of concern. Expand and improve those communication channels and relationships.

Weber School District:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures.
- The district has a "Capital Improvements Committee," which is tasked to manage district-owned properties. The committee meets on a monthly basis to discuss safety, risk management, acquisition of new properties, regulations, and the overall management of properties. The committee coordinates with local municipalities and the county on planning. The district recently hired a Public Information and Safety Assistant Officer to better assist with emergency management.

West Warren–Warren Water Improvement District:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures.
- Create more emergency plans and ways to distribute emergency education material from the website or directly to each customer.

Weber Fire District:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures.
- Improve grant writing potential.

North View Fire District:

- Opportunities to improve staffing, train staff in hazards and mitigation, and expand knowledge on how the capability helps implement mitigation measures.
- Improve grant writing and develop staff to better understand how to write effective grants.

Financial Capabilities to Expand or Improve

- **Weber County:** Apply for grants to assist with emergency management, preparedness, and response capabilities. Work to address whatever strategies the County can afford to be more resilient and improve issues that might provide some mitigation against hazards. This can be limited depending on what those needs are. Improvement means continuing to see what projects can be done to mitigate threats and risks based on available financial resources.
- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants.

Farr West City

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants

City of Harrisville

- Has an opportunity to expand financial resources by improving grant writing ability. Staff members are taking grant writing training and participating in state meetings to learn more about grants and how to apply for them.
- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants

City of Hooper:

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants
- Seek grants to help address potential hazards.

City of Huntsville:

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants
- If needed, seek state and county funding. We are not seeking any specific grants at this time. We will be looking at this in the future.

City of Marriott–Slaterville:

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants
- They can be improved through grants or other funding sources.

City of North Ogden:

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants
- Searching out mitigation funding opportunities.

City of Ogden:

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants
- Improve by increasing budgets for CIP projects.

Ogden City School District:

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants
- Set tax rates (increase revenue) to use for capital improvements. The district could benefit from state guidance or support for identifying and obtaining additional funding (e.g., BRIC grant).

City of Plain City:

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants
- The City will look for and apply for upcoming grants to assist with future mitigation efforts.

City of Pleasant View:

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants
- Seek CDBG funding to better support and aid the City in these functions.

City of Riverdale:

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants
- Meet annually to improve emergency management funding.

City of Roy:

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants
- The city can pursue new grant programs like FEMA's BRIC grant program.

City of South Ogden:

- To address the financial challenges of implementing mitigation measures, the city will actively seek funding opportunities through federal and state grant programs. One specific action will be to apply for the Building Resilient Infrastructure and Communities (BRIC) grant, which provides financial support for projects aimed at reducing disaster risks and building community resilience. By pursuing the BRIC grant and other similar funding sources, the city will be able to finance critical mitigation measures such as flood control infrastructure, wildfire prevention initiatives, and earthquake retrofitting efforts without overburdening the local budget. These grants will enable the city to invest in long-term solutions that protect both residents and property while ensuring that financial resources are allocated efficiently. This proactive approach to securing external funding will allow the city to enhance its resilience while minimizing the financial impact on the community.

City of Uintah:

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants
- Get training.

City of Washington Terrace:

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants

1. **Securing Federal and State Grants:**
    a. **Opportunity:** Actively pursue federal and state grants dedicated to floodplain management, emergency preparedness, and infrastructure improvement.
    b. **Improvement:** Provides additional funding to support essential projects and initiatives without heavily burdening local budgets.
    c. **Challenges:** Grant application processes can be competitive and time-consuming, requiring dedicated personnel to identify opportunities and prepare applications.
2. **Establishing a Dedicated Flood Management Fund:**
    a. **Opportunity:** Create a fund specifically for flood management and mitigation projects, supported by a combination of municipal budget allocations, grants, and public–private partnerships.
    b. **Improvement:** Ensures a consistent and reliable source of funding for flood-related initiatives and projects.
    c. **Challenges:** Requires initial financial investment and ongoing commitment from the City Council and Administration to allocate resources to the fund.
3. **Leveraging Public–Private Partnerships:**
    a. **Opportunity:** Form partnerships with private companies and nonprofit organizations to co-fund and implement flood mitigation projects.
    b. **Improvement:** Expands the financial resources available for flood management and brings in additional expertise and innovation from the private sector.
    c. **Challenge:** Requires negotiation and collaboration to align public and private interests and ensure transparency and accountability.

City of West Haven:

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants
- Share written plan to grant writers (engineering) to apply for BRIC.

Central Weber Sewer Improvement District:

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants
- Incorporate resiliency and redundancy in the district's infrastructure capital facilities planning and funding. The capital facilities plan looks out 20 years. The district maintains a reserve fund incorporated into our financial planning., which is maintained with a five-year outlook.

Hooper Water Improvement District:

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants
- The district will seek additional resources such as grants and low interest loans for additional financial avenues to fund hazard mitigation projects.

Pineview Water System:

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants
- Our Districts fund the projects that need upgrading/updating. We have for so long tried every measure to keep costs down to pass the savings on to the customer that helps our water be more economical. The District will apply for mitigation funding that has increased availability post-disaster.

Roy Water Conservancy District:

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants
- Improve our financial capability by hiring a more qualified financial clerk.

Taylor West Weber Water District:

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants
- We recently conducted a rate study as well as an impact study. We plan on revisiting and doing more studies every five to ten years. As we continue to study our rates and impacts, we are looking at ways to fund hazard mitigation projects.

Weber Morgan Health Department:

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants
- We have an EM general fund to help in the interim of an incident to support with staffing or equipment. This fund is a restricted account for incidents and for maintenance and improvements. We will ensure it stays above the allotted level to maintain the fund.

Weber School District:

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants

- The district could look for grant opportunities such as the BRIC grant to support seismic retrofitting and upgrades.

West Warren–Warren Water Improvement District:

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants
- Can apply for grants and bonds, require all land in the District to be annexed to increase taxation area and increase collection of taxes to be used for emergency mitigation improvements. Can also create agreements with developers to help fund infrastructure improvements.

Weber Fire District:

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants
- Have the resources to disseminate material to the public.

North View Fire District:

- Opportunities to expand knowledge on what funding sources are available, how funding sources have been used in the past and how it could be used to fund future mitigation actions. Also, to learn about available funding sources for local cost match for federal grants
- Would like additional funding for wildfire mitigation.

Education and Outreach Capabilities to Expand or Improve

Weber County

- Educate staff on preparedness, training as needed to make sure the County can respond with the capabilities it has. There are monthly preparedness meetings, and the County conducts or attends CERT, Amateur Radio Emergency Service, and VOAD meetings. Attendees at monthly emergency management meetings include city emergency managers in the county, but also personnel from hospitals, schools, the Utah Transit Authority, and Local Emergency Planning Committees (made up of private businesses and responders). Preparedness materials are handed out at local events and given to local city or neighborhood groups that request them. Improvement involves continuing those efforts, particularly by looking for opportunities to engage with marginalized populations that have not had much engagement with emergency management directly, but rather through health and human services organizations. Attending more local events and provide more outreach materials for civic organizations to hand out.

Farr West City:

- Extend mitigation information to the local schools as well as through senior center activities and youth sports programs.

City of Harrisville:

- Can improve education and outreach. Several social media platforms can be used to provide educational materials. Can also coordinate more with church groups and other groups and participate in events that they host.
- Opportunities to expand understanding of how to incorporate hazard mitigation into existing education and outreach capabilities.

City of Hooper:

- Frequent communication with citizens and yearly emergency preparedness fair.
- Opportunities to expand understanding of how to incorporate hazard mitigation into existing education and outreach capabilities.

City of Huntsville:

- Will better inform residents about the NFIP and what their options are. Continue to organize the City's emergency response plan and to offer classes and information on personal emergency preparedness.
- Opportunities to expand understanding of how to incorporate hazard mitigation into existing education and outreach capabilities.

City of Marriott–Slaterville:

- Awareness campaign can be improved by reaching out through newsletters and social media.
- Opportunities to expand understanding of how to incorporate hazard mitigation into existing education and outreach capabilities.

City of North Ogden:

- Solicit community input on ordinance changes ahead of City Council votes.
- Opportunities to expand understanding of how to incorporate hazard mitigation into existing education and outreach capabilities.

City of Ogden:

- Improve by creating more outreach opportunities to inform the public of projects that benefit the community.
- Opportunities to expand understanding of how to incorporate hazard mitigation into existing education and outreach capabilities.

Ogden City School District:

- Distribute risk awareness and mitigation information from state, county, and local agencies to stakeholders.
- Opportunities to expand understanding of how to incorporate hazard mitigation into existing education and outreach capabilities.

City of Plain City:

- Provide public and city staff education/training on their roles in a disaster and the types of disasters that could impact the city. The city will include hazard mitigation on social media for outreach to the public and flyers located at city hall.
- Opportunities to expand understanding of how to incorporate hazard mitigation into existing education and outreach capabilities.

City of Pleasant View:

- Continuing education and outreach through community events, newsletters, and social media.
- Opportunities to expand understanding of how to incorporate hazard mitigation into existing education and outreach capabilities.
- **City of Riverdale**:
- Improvement by expanding the social media outreach past Facebook.
- Opportunities to expand understanding of how to incorporate hazard mitigation into existing education and outreach capabilities.

City of Roy:

- The city can expand current social media public outreach to include hazard mitigation as well as hazard awareness.
- Opportunities to expand understanding of how to incorporate hazard mitigation into existing education and outreach capabilities.

City of South Ogden:

- For Education and Outreach, the city will work to include mitigation strategies in all of its community awareness efforts. This means adding information about preparing for disasters into community newsletters, social media posts, and at public events. For example, the city will use newsletters and the website to tell residents how they can protect their homes from things like floods, wildfires, and earthquakes. These messages will include simple steps like clearing brush around homes to reduce wildfire risk, strengthening homes to withstand earthquakes, and having emergency kits ready. The city will also hold public workshops to explain these steps in more detail, making sure people know what they can do to stay safe before a disaster happens. This way, residents will be better informed and motivated to take action.

City of Uintah:

- Will include mitigation in monthly newsletters on an annual basis to inform and educate the residents.
- Opportunities to expand understanding of how to incorporate hazard mitigation into existing education and outreach capabilities.

City of Washington Terrace:

1. **Community Awareness Campaigns:**
    a. **Opportunity:** Launch ongoing awareness campaigns to educate residents about flood risks, preparedness, and mitigation strategies.
    b. **Improvement:** Increases public knowledge and proactive engagement in flood prevention measures, enhancing community resilience.
    c. **Challenge:** Requires continuous effort and resources to maintain engagement and effectively reach all community members.
2. **Workshops and Training Sessions for Residents:**
    a. **Opportunity:** Organize regular workshops and training sessions for residents on topics, such as emergency preparedness, floodproofing homes, and understanding floodplain maps.
    b. **Improvement:** Provides practical knowledge and skills to residents, enabling them to take effective actions to protect their properties and families.
    c. **Challenge:** Requires planning, resources, and sustained attendance to be effective.
3. **Using Social Media and Digital Platforms:**
    a. **Opportunity:** Use social media, websites, and mobile apps to disseminate information, share updates, and engage with the community about flood risks and preparedness tips.
    b. **Improvement:** Reaches a broad audience quickly and effectively, allowing for interactive and real-time communication.
    c. **Challenges:** Requires dedicated personnel to manage digital platforms and ensure the accuracy and timeliness of information.
4. **Emergency Preparedness Drills and Simulations:**
    a. **Opportunity:** Conduct community-wide emergency preparedness drills and simulations to practice response actions and identify areas for improvement.
    b. **Improvement:** Enhances readiness and confidence among residents and responders, ensuring a more coordinated and effective response in actual emergencies.
    c. **Challenges:** Needs substantial planning and resources to organize and execute drills effectively and to ensure broad participation.

City of West Haven:

- Incorporate and share plan at city functions that apply.
- Opportunities to expand understanding of how to incorporate hazard mitigation into existing education and outreach capabilities.

Central Weber Sewer Improvement District:

- Plans and mitigation efforts are posted to the district's website. Because the district is a wholesale provider of services to our local communities, it provides information to our member communities regarding emergency preparedness and readiness.

Hooper Water Improvement District:

- Yes. Educational information will be posted on the district's website to help educate people of the risks associated with loss of public water infrastructure during an earthquake or landslide.

Pineview Water System:

- Opportunities to expand understanding of how to incorporate hazard mitigation into existing education and outreach capabilities.
- Support partners that want to share additional mitigation information.

Roy Water Conservancy District:

- Improve by keeping our website updated with information regarding drought, appropriate water usage, and what to do in a natural disaster such as an earthquake.
- Opportunities to expand understanding of how to incorporate hazard mitigation into existing education and outreach capabilities.

Taylor West Weber Water District:

- Improve the website and visit schools to inform them about the possibilities of contamination and how to avoid possible backflow incidents associated with floods, for example.
- Opportunities to expand understanding of how to incorporate hazard mitigation into existing education and outreach capabilities.

Weber Morgan Health Department:

- WMHD actively strives to meet the needs of the community, especially those considered AFN. WMHD has recently updated the website and improved efforts to create all flyers and materials in multiple languages to accommodate our non-English speakers. WMHD is continuously improving these efforts.

Weber School District:

- The district recently created a Communications Team to provide greater outreach to the public and stakeholders. This team could help disseminate information related to hazard mitigation and safety in the form of newsletters, videos, and online content.

West Warren–Warren Water Improvement District:

- Opportunities to expand understanding of how to incorporate hazard mitigation into existing education and outreach capabilities.
- Have more public hearings than just the one each December; ask the public for suggestions to improve emergency plans.

Weber Fire District:

- Opportunities to expand understanding of how to incorporate hazard mitigation into existing education and outreach capabilities.
- Do more Coordinated Community Response (CCR) to involve and educate the public in disaster mitigation.

North View Fire District:

- Opportunities to expand understanding of how to incorporate hazard mitigation into existing education and outreach capabilities.
- Would like to meet with the local senior center and work with the seniors.

Flood Management Capabilities to Expand or Improve

The following statements describe how the jurisdictions participating in this plan update can expand and improve their flood management capabilities. Given that the special districts do not participate in the NFIP and floodplain management would be the responsibility of the jurisdiction(s) they serve, no opportunities to expand or improve the capabilities of the special district plan participants.

Weber County:

- The County can begin to maintain elevation certificates, Track the number of buildings in the special flood hazard area and identify any trends. In addition, develop a process for substantial damage/substantial improvement and provide the public with information on flood insurance options

Farr West City:

- The City does not currently participate in the NFIP but is interested in participating. Adopting a flood ordinance, identifying a floodplain administrator, and joining and implementing the floodplain management standards of the NFIP will expand current capabilities.

City of Harrisville

- Specific opportunities for expanding staff and training to make substantial damage/substantial improvement determinations. Develop messaging to the public regarding substantial damage/substantial improvement requirements before and after an event. . In addition, provide the public with information on flood insurance options

City of Hooper

- Learn about NFIP participation or determine why the City is not participating.

City of Huntsville

- The City can begin to maintain elevation certificates. In addition, develop a process for substantial damage/substantial improvement and provide the public with information on flood insurance options

City of Marriott-Slaterville

- Develop a process to issue permits in the special flood hazard area, maintain elevation certificates, track the number of buildings in the special flood hazard area, identify trends. Also, maintain and update documentation on repetitive loss and severe repetitive loss structures. In addition, develop a process for substantial damage/substantial improvement with sufficient staff and training to make determinations, maintain updated documentation on structures, and provide requirements messaging to the public before and after an event.

City of North Ogden

- Maintain elevation certificates, tracking the number of buildings in the special flood hazard area, identifying trends. In addition, maintain and update documentation on repetitive loss and severe repetitive loss structures. Also, provide the public with information on flood insurance options.

City of Ogden

- Develop a process to track the number of buildings in the special flood hazard area and identify trends. In addition, maintain and update documentation on repetitive loss and severe repetitive loss structures. In addition, develop a process for substantial damage/substantial improvement with sufficient staff and training to make determinations, maintain updated documentation on structures, and provide requirements messaging to the public before and after an event. Provide public education program on floodplain management and the availability of flood insurance, in and out of the floodplain.

City of Plain City:

- Provide public and city staff education/training on floodplain management including promoting the availability of flood insurance. Note when maps are changing additional needs for public engagement.

City of Pleasant View:

- Collect additional floodplain data and modeling to understand if and where additional data is needed including on how the new maps perform. Evaluate flood insurance utilization in community and identify if further outreach is needed.

City of Riverdale:

- Develop new public outreach campaign on flood risk and flood insurance availability. Study opportunity to reduce risk near riverbed and submit for map amendments, if applicable.

City of Roy

- To improve NFIP capabilities, maintain elevation certificates, develop a process for substantial damage/substantial improvement with sufficient staff and training to make determinations. In addition, maintain updated documentation on structures, and provide requirements messaging to the public before and after an event. Also, educate the public on floodplain management, the availability of flood insurance, in and out of the floodplain, and provide the public with information on flood insurance options.

City of South Ogden:

- Pursue additional public outreach, staff training, and staffing as possible to support the floodplain manager in implementing floodplain management requirements. Consider opportunities to collaborate with Public Works to collect elevation certificates. Draft substantial damage/substantial determination process step-by-step instructions.

City of Uintah:

- Develop a public education program on floodplain management, the availability of flood insurance, in and out of the floodplain, and information on flood insurance options.

City of Washington Terrace:

- Washington Terrace can implement the following strategies:
  - 1.Regular Training and Education: Provide continuous training for city staff and officials on NFIP requirements and updates. Conduct workshops and informational sessions for the community to raise awareness about floodplain management and compliance.
  - 2. Ongoing Monitoring and Inspections: Conduct regular inspections and monitoring of construction projects and developments to ensure adherence to NFIP regulations. Implement a tracking system for permits and compliance checks.
  - 3. Public Outreach and Engagement: Engage with residents and property owners through outreach programs, informing them about the importance of NFIP compliance and how they can contribute. Use newsletters, social media, and community meetings to disseminate information.
  - 4. Updating Plans and Ordinances: Regularly review and update local floodplain management ordinances and plans to align with NFIP requirements. Ensure that the Emergency Operations Plan (EOP) and other relevant documents reflect current standards and practices.
  - 5. Adopting Best Practices: Incorporate best practices in floodplain management and mitigation into local planning and development processes. This includes using data and tools provided by FEMA to assess and reduce flood risks.
- **City of West Haven:**
- Maintain updated documentation on substantial damage/substantial improvement structures and provide requirements messaging to the public before and after an event. Also, educate the public on floodplain management, the availability of flood insurance, in and out of the floodplain, and provide the public with information on flood insurance options.

Mitigation Strategy

	C3. Does the plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement 44 CFR § 201.6(c)(3)(i))
	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 44 CFR § 201.6(c)(3)(ii))
	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 44 CFR § 201.6(c)(3)(iii)); (Requirement 44 CFR § 201.6(c)(3)(iv))
	E2. Was the plan revised to reflect changes in priorities and progress in local mitigation efforts? (Requirement 44 CFR § 201.6(d)(3))
	HHPD3: Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?
	HHPD4: Did the plan include actions that address HHPDs, and prioritize mitigation actions to reduce vulnerabilities from HHPDs?

Effective hazard mitigation requires the collective effort of many agencies, organizations, communities, and individuals working together to lessen the impact of disasters. During the mitigation planning process, the county secured input from organizations across many disciplines that share one goal: promoting community resiliency.

The Weber County mitigation strategy emerged as a result of the discussions held during plan update meetings, a review of the previously proposed hazard mitigation actions from the 2016 Plan, and a review of existing resources and capabilities. This plan section presents the guiding principles for this Plan, and the mitigation initiatives that have been identified to reduce or avoid long-term vulnerabilities to the County's most significant hazards.

After completing the hazard risk assessment, the Planning Team identified potential strategies to reduce or eliminate those risks in ways that address the needs of Weber County residents and county agencies that manage the elements and actions of the mitigation strategy.

The results of the risk assessment informed planning participants how to best manage three essential tasks, the completion of which would enable the Planning Team Working Group to develop an effective mitigation strategy.

General Mitigation Strategies

Developing mitigation strategies was a process in which all of the previous steps were taken into account. The County evaluated, identified and profiled the hazards, and vulnerability assessment. Then, general mitigation strategies were evaluated. These actions considered reflect a wide range of potential measures which could be taken to reduce risk. Participants were encouraged to select actions that would best reduce their unique risks and vulnerabilities.

For the purpose of this mitigation Plan, mitigation strategies will be divided into one of six categories according to how they accomplish mitigation. The six categories include:

- Emergency Services
- Natural Resource Protection
- Mitigation
- Property Protection
- Public Information and Involvement
- Structural Protection

Hazard Mitigation Goals

Goals are broad policy-type statements that reflect the county's vision for its hazard mitigation program. Objectives help clarify goals. Each mitigation action supports one or more goals and objectives. Mitigation actions are specific current or proposed steps the County can take to achieve its stated objectives. Actions must be technically feasible, cost effective, and environmentally sound.

Weber County, participating jurisdictions, and planning participants identified 14 natural hazards to be addressed by the Plan. Goals were identified in a collaborative process incorporating feedback to DEM to be more specific. Furthermore, the plan participants elected not to include objectives in this version of the plan update. Instead, the crucial information included in the objectives was incorporated into their actions. The following goals are intended to support progress in implementing mitigation measures effectively across the planning area:

- Protect life and property by prioritizing actions that reduce risk to critical infrastructure and community lifelines, including safety and security, health and medical, and communication lifelines.
- Promote opportunities to protect developed property, homes, businesses, industry, and educational institutions.
- Implement actions which support broader environmental, social, and economic goals of the participants and their communities.
- Build partnerships and county-wide opportunities to implement mitigation.

- Consider nature-based solutions and integrate measures which preserve natural features of the environment whenever possible.
- Promote private and public sectors' awareness of the risks they may be exposed to and potential mitigation measures to reduce those risks.
- Reduce the potential impacts of flooding by promoting awareness of this risk and developing relationships and partnerships in high-impact areas.

The Planning Team Working Group conducted the following activities:

- Reviewed the goals, objectives, and mitigation strategies included in the 2016 HMP to assess their effectiveness and relevance and to identify potential gaps in mitigation needs that must be addressed. Reviewed DEM feedback on prior mitigation goals, objectives, and actions.
- Asked county agencies responsible for mitigation actions to review each action to determine whether it is an ongoing initiative or whether the action has been completed, deferred, or deleted because it is no longer relevant. The agencies were also asked to provide information supporting the status of each action, including how it may be implemented in the future.
- Members of the Planning Team Working Group also identified new strategies to improve capabilities and mitigate risks identified in statewide and local risk assessments, so that mitigation priorities are based upon loss reduction.

Overall, this strategy reflects the county's goal to reduce and/or eliminate the adverse effects of natural, technological, and human-caused hazards on the county's built and natural environments and the population, especially vulnerable socioeconomic groups.

Mitigation Actions

While developing its mitigation strategy, the Core Planning Team allowed its mitigation goals and objectives to inform the process of identifying, evaluating, and prioritizing its actions and initiatives to ensure that those included in this plan are cost-effective, environmentally sound, and technically feasible. The mitigation actions were then discussed and evaluated. The results of the evaluation of actions were prioritized based on a range of factors to determine high-priority projects and timelines.

Status of Previous Mitigation Actions

The plan update process serves as an opportunity to evaluate mitigation successes, challenges, and opportunities for future mitigation projects. This process begins by evaluating the status of previous mitigation actions. Table 369 through

Table 395 show the status of the mitigation actions that the plan participants included in the previous plan. Participants were asked to identify which actions to retain however, after further discussion wording and project details may vary between projects identified in these tables to be retained and the official list

of 2024 mitigation actions which follows. Some actions are also considered no longer relevant to a mitigation plan.

Table 369: Previous Mitigation Actions of Weber County

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Rehabilitate spillway on Utaba Reservoir	County Emergency Management, state, U.S. Bureau of Reclamation (BOR)	Currently underway. Project to replace the entire dam structure	Yes – combined Utaba project included
Survey leak around Utaba Reservoir outlet in an effort to eliminate spring	County Emergency Management, state, BOR	Currently underway. Project to replace the entire dam structure	Yes – combined Utaba project included
Replace culvert at Camp Utaba	County Emergency Management, state, BOR	Currently underway. Project to replace the entire dam structure	Yes – combined Utaba project included
In partnership with BOR, develop accurate dam failure inundation maps for BOR dams	County Emergency Management, state, BOR	Currently underway. Project to replace the entire dam structure	Yes – combined Utaba project included
In partnership with BOR, develop accurate dam failure evacuation maps for BOR dams in continuation with 2009 actions	County Emergency Management, state, BOR	Currently underway. Project to replace the entire dam structure	Yes – combined Utaba project included
Hire a structural engineer to determine options and costs to retrofit or rebuild the structure.	County operations, County engineer, consulting engineer	Completed. Parking structure was demolished in 2018.	No

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Implement structural engineering recommendations to meet seismic standards	County operations, County engineer, consulting engineer	Completed. Parking structure was demolished in 2018	No
Add emergency backup power and seismic upgrades to sewer lift stations. Supervisory Control and Data Acquisition (SCADA) to monitor systems.	County operations, County engineer, consulting engineer	In progress	Yes
Repair the levee and complete rip rap and bank stabilization projects to complete improvements	County operations, County engineer, consulting engineer	Ongoing project based on annual damage due to runoff	Yes
Complete repairs in the Fort Buenaventura area by building sediment ponds and engineered wetlands to clean the water before it enters the fishing lake	County operations, County engineer, consulting engineer	Currently in the permitting process to repair completed mitigation actions damaged by 2023 flood event	Yes
Increase the capacity of the Burch Creek railroad crossing to prevent the flooding of local businesses	County operations, County engineer, consulting engineer	Incomplete.	Yes
Enact a county stormwater ordinance to revise discharge rate requirements for new construction	County engineer, County attorney	Completed in 2019 revision to ordinance	No

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Storm drain piping 1100 South 6800 East – Valley Lake Estates corner of 1100 S and 8900 E to HWY 39	County engineering.	Completed 2023	No
Easements & ditch from Shaw Drive south to Church (Above Bailey Acres)	County engineering	Completed 2023	No
Install drain pipe and pipe to Chicken Creek (4100 North 3400 East)	County engineering	Completed 2023	No
Remove 36" pipe in Eden Acres subdivision above structure	County engineering	They piped it to meet septic tank approvals but it causes flooding concerns. Will have to be lined if open. Pending review as to how to proceed. Pending	Yes
Increase pipe size through intersection at 4100 North 3300 East	County engineering	In progress – needs to be completed.	Yes
Install catch basin on North Ogden Divide to divert water that is eroding bank	County engineering	Completed	No
Ditch to direct storm drain southeast of Country Gardens, 2300 North	County engineering	Removed from actions	No. No longer relevant.
Replace two rusted out culverts, Hwy 162 near 3300 North	County engineering	Completed 2022	No

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Repair storm drain issues in Sheep Creek, west of 4084 East on 4500 North	County engineering	Completed 2023	No
Improve borrow ditch on 3500 East and 3300 North	County engineering	Not completed	Yes
Improve barrow ditch on 3300 East and 4100 North	County engineering	Not completed	Yes
Improve barrow ditch on 3300 East from Bailey Acres	County engineering	Completed 2023	No
Improve drainage from Nordic Valley Drive to North Fork River down Hwy 162	County engineering	Not completed, pending further review.	Yes
Install pipe on Melanie Lane	County engineering	Complete.	No
Storm drain piping 4550 West at 2847 South	County engineering	Currently in the design phase	Yes
Remove/replace pipe – 1775 South 3500 West	County engineering	Completed	No
Uintah Highlands Lincoln Highway Pond Drainage	County engineering	Completed	No
Drainage on 3300 East culvert to take water to Chicken Creek	County engineering	Not completed, pending further review.	Yes

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Eden Acres Detention Pond or Relief from the canal	County engineering	Not completed – contracted awarded, work to begin 2024.	Yes
Outlet structure on existing pond, Elkhorn Subdivision; corner of Buckhorn Drive and Elkridge Trail	County engineering	Not completed, pending further review.	Yes
Clean and modify existing storm drain at intersection of Hwy 158 Wolf Creek Drive and 3900 North Elkhorn Trial	County engineering	Not completed, pending further review.	Yes
Clean and rip rap drainage channel in Sheep Creek	County engineering	Removed from project list.	No. No longer relevant.
Install catch basin 4390 North 3175 East	County engineering	Removed from projects.	No
Culverts on Avon Divide	County engineering	Completed 2022.	No
Define drainage swale and place culvert – Viking Drive and Nordic Valley Way	County engineering	Completed	No
Clean and install new pipe and connect to main drainage – 3804 East 2050 North , Nordic Valley	County engineering	Completed 2024	No
Replace and upgrade existing pipe – 3500 East across from ski resort	County engineering	Nordic Ski resort will address with new development 2025	No

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Raise MH that is covered – 2200 South and 4075 West	County engineering	Completed	No
Pipe Warm Springs western drain water	County engineering	Not completed, pending further review.	Yes
Repair fence around detention pond in Industrial Park	County engineering	Completed 2022	No
Upgrade storm drains by school off Eastwood	County engineering	Completed	No
Repair pipe west of 2100 East Combe Road	County engineering	Completed	No
Increase pipe size at Warm Springs western drain	County engineering	In progress as of 2024	Yes
Large detention pond pipe at Fairground Pond	County engineering	Action removed	No. No longer relevant.
Combe Road Inlet Box	County engineering	Currently in the design phase.	Yes
Culverts on North Ogden Divide Road	County engineering	Completed 2020	No
Drainage at 3678 East 4350 North, Liberty	County engineering	Incomplete.	Yes
Locate and find MH on storm drain, Willow Brook Lane and Willow Brook Circle	County engineering	Removed from projects	No. No longer relevant.

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Storm Drain Box – 3786 Abbeyon Drive	County engineering	Not completed – pending further review.	Yes
Clean and sterilize Seed Gail Armstron Drain – 2300 North	County engineering	Annual maintenance project now.	No. No longer relevant (maintenance).
Clean and flush catch basins at bottom Elkridge Trail	County engineering	Completed 2023	No
Clean and flush at 2113 North 3850 East	County engineering	Annual maintenance project now.	No. No longer relevant (maintenance).
Shooting Range Pipe	County engineering	Not complete, pending further review.	Yes
Modify grate on catch basin in detention pond below Moose Hallow	County engineering	Project will be addressed during new development.	Yes
Implement and fund identified stormwater projects in the Lower Valley to lessen impact of flooding in the County.	County engineering	Incomplete.	No. No longer relevant.
Combe Road Asphalt Gutter	County engineering	Pending	Yes
Clean rail crossing culverts at Burch Creek	County engineering	Incomplete.	No. No longer relevant.

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Culvert at 5500 South 4400 West	County engineering	Complete.	No
Mud Creek Detention Basin	County engineering	Complete.	No
Culvert under Hooper Canal and 3300 West	County engineering	Incomplete.	Yes
Howard Slough Study	County engineering	Incomplete.	Yes
Roy/West Haven Detention on Barlow Property	County engineering	Incomplete.	No. No longer relevant.
2700 North Diversion from Western to Willard Canal	County engineering	Completed	No
Culvert on 6700 West & 2550 North	County engineering	In progress as part of road widening project	Yes
Rice Creek Detention Basin	County engineering	Incomplete.	Yes
Culvert on 5900 West & 2400 North	County engineering	Not completed, pending further review.	Yes
Culvert under 700 North & 7500 West	County engineering	Incomplete.	Yes
Culvert under 700 North & 7000 West	County engineering	Incomplete.	Yes
Culvert on 1900 North about 6350 West	County engineering	Incomplete.	Yes

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Culvert under 6700 West & 250 North	County engineering	Incomplete.	Yes
Culvert at 3500 West & 900 South	County engineering	Incomplete.	Yes
Culvert at 1600 South and 5100 West	County engineering	Incomplete.	Yes
Culvert at 2550 South & 4700 West (UDOT Intersection)	County engineering	Not completed, pending further review	No. No longer relevant at this time, pending further review.
Culvert at 4000 South & 3550 West (West Haven City)	County engineering	Incomplete.	No. No longer relevant
Catch basin and pipe to Connect the West side of the road to Fenster Farms	County engineering	Not completed, pending further review	Yes
Long-term sheet flow flooding mitigation project in the area of 2300 North	County Emergency Management/County Engineering	No longer a priority.	No. No longer relevant.
Continue to support operations and public education regarding the Special Needs Registry, which notifies residents that need oxygen, medical equipment, etc. of coming severe storms, extreme heat, power outages, and other hazards so they can plan ahead for backup power, obtain extra supplies, etc.	County Emergency Management/County Engineering	Ongoing Project	Yes

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Implement recommendations of studies completed; determine necessary actions	County Emergency Management/County Engineering	Relates to problem soils/landslides, not necessary at this time.	No. No longer relevant.
Update the County Natural Hazards Hillside Development Ordinance	County Engineering/ County Planning	Done 2019	No
Work with Ogden City Fire Department to develop an Interagency Wildland Urban Interface Response Plan and Procedures	County/City Emergency Management, Weber Fire District, Ogden City	Completed monitoring for change	No
Work with cities to develop and implement fireworks restrictions	County/City Emergency Management, Weber Fire District, North View Fire District, Public Officials	Completed through state statute	No
Continue to encourage communities to implement "Firewise" actions.	County Emergency Management/ Weber County Fire Warden	Ongoing	Yes

Table 370: Previous Mitigation Actions of Farr West City

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Equip City Hall with a generator	City Emergency Manager,	Completed	No

Action	Responsible Agency	Status	Should this action be retained in the plan update?
	Public Works, Engineer, etc.		
Continue mapping sewer and storm drains	City Engineer/Public Works	Incomplete	Yes
Construct 5-acre pond/park for flood mitigation	City Emergency Manager, Public Works, Engineer, etc.	Incomplete	Yes

Table 371: Previous Mitigation Actions of the City of Harrisville

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Develop and maintain long-term stormwater management plans with neighboring communities and county agencies	1 quarter-time public works employee	Completed. Plan adopted in 2017	No.
Maintain ongoing infrastructure inspections to ensure structures remain sound and water flow paths are not filled with debris	1 quarter-time public works employee	A plan has been developed and is being followed. This action is no longer needed. It is an ongoing item.	No
Develop and maintain long-term development plans to ensure new development is connected to stormwater drainage	City Planner	Not completed. This action will be included in the new plan.	Yes

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Develop long term plan to replace city office buildings with modern structures that will safely house all city services.	City Administrator	The new public works building is scheduled for completion in December 2024. The new city offices and police department are being actively worked on with an architect firm. It is in a planning phase. The city is exploring funding options for the second half of the new municipal complex.	Yes
Ongoing inspection and maintenance	Public Works	No updates – continues to be ongoing.	No. No longer relevant (maintenance).

Table 372: Previous Mitigation Actions of the City of Hooper

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Install the generators previously purchased including transfer switches at the City Shops and City Hall	Public Works	Completed	No

Table 373: Previous Mitigation Actions of the City of Huntsville

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Purchase a new CERT Trailer that can be pulled behind a truck in the event of an emergency	Mayor, Town Council	Completed	No
Obtain a second water source for the system by drilling a new well.	Mayor, Town Council	Completed	No
Install 3-phase generator for the pumps	Mayor, Town Council	Completed	No
Have reliable maps of the water system using GPS ties to the GIS map	Mayor, Town Council	No, Still in progress	Yes
Fund a study that will determine flood mitigation on South Fork that will coordinate with FEMA flood zones and property needs.	Mayor, Town Council	No, Still in progress	Yes

Table 374: Previous Mitigation Actions of the City of Marriott–Slaterville

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Floodplain and Flood Mitigation. Property acquisition and structure demolition/ relocation along flood plain areas and adjoining	City Administration, Public Works, Engineering	Not completed. Working to secure financing to enable these actions to continue	Yes

Action	Responsible Agency	Status	Should this action be retained in the plan update?
properties, localized/non-localized flood reduction projects.			
Structure Preservation. Mitigation reconstruction, dry flood proofing non-residential/residential historical structures	City Administration, Engineering	Not completed. Working with IEM on a grant scoping project	Yes
Public Works and Safety Project. Structural retrofitting/nonstructural retrofitting of existing buildings and facilities, safe room construction, infrastructure retrofit.	City Administration, Public Works, Engineering	Not completed. Working to secure financing	Yes
Work with the BOR and Weber County to get updated flood inundation maps based on recent LIDAR.	City Administration, Public Works, Engineering	Not completed.	No, FEMA issued new maps on 11/23. No longer relevant.

Table 375: Previous Mitigation Actions of the City of North Ogden

Action	Responsible Agency	Status	Should this action be retained in the plan update?
New Police Department/Public Works Complex built to meet current codes	City Emergency Manager, Public Works, Engineer, etc.	Completed	No
Continue ultra-lining sewer mains	Public Works, Engineer, etc.	This is a multi-year project with expected completion in 2030.	Yes

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Storm water detention basin on 1700 N	Public Works, Engineer, etc.	Agreements not finalized	Yes
Upgrade stormwater system and drains citywide	Public works, engineer, etc.	This is a multi-year project with expected completion in 2035.	Yes
Construct stormwater regional detention basin.	Public works, engineer, etc.	Construction projected to begin fall 2024–spring 2025	Yes
Reconstruct park restrooms and CERT shed components in three parks	City emergency management	Completed	No

Table 376: Previous Mitigation Actions of the City of Ogden

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Upgrade fire stations 2, 4, and 5. Build new fire station 3 instead of upgrading.	Ogden City Fire Department, Public Works, Engineering	Stations 2, 4, and 5 have been upgraded. Station 3 new build is complete.	No
Ogden airport: seismic proofing of terminal tower	Airport Management, Engineering, Public Works	New remodel of airport will take place	Yes

Table 377: Previous Mitigation Actions of the Ogden School District

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Seismic Upgrades at the following Schools	Ogden School District		
• Bonneville Elementary School		Planned closure at the end of 2024–2025 school year)	Yes
• Gramercy Elementary School		Planned closure at the end of 2024–2025 school year)	Yes
• Hillcrest Elementary School		Demolished; being replaced with new construction	No
• Horace Mann Elementary School		Demolished; being replaced by new structure, East Ridge Elementary	No
• Older sections of James Madison Elementary School		Ended use as elementary school at end of 2022–2023 school year. Limited use by community partners in *older* sections. Adult education in *newer* sections.	Yes
• Polk Elementary		Seismic upgrades completed in original 1920s structure. 1950s structure demolished and replaced with new structure.	No
• Taylor Canyon Elementary School		Demolished	No

Action	Responsible Agency	Status	Should this action be retained in the plan update?
• T.O. Smith Elementary School		Demolished. Replaced by new structure, Liberty Elementary	No
• Wasatch Elementary School		A new addition has been added, moving some grades into a modern structure. The original C3A single-story structure has not been retrofitted with seismic upgrades for current standards.	Yes
• Highland Junior High School		Original C3A facility has not been fully retrofitted with seismic upgrades for current standards.	Yes
• Mound Fort Junior High School		Some roof upgrades needed.	Yes
• Mount Ogden Junior High School		C3 facility has not been fully retrofitted with seismic upgrades for current standards.	Yes
• George Washington High School		C3A facility has not been fully retrofitted with seismic upgrades for current standards. Building slated for closure in approximately 1–5 years	Yes
Develop and implement a manual similar to Salt Lake City (SLC) school districts	Ogden School District	Emergency Preparedness Plan Completed	No

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Develop a training document for school-teachers showing nonstructural mitigation activities for classrooms	Ogden School District	Emergency Preparedness Plan Completed	No
Purchase Generators for the following build-ings:			
• Highland		Not completed	Yes
• Mound Fort		Not completed	Yes
• T.O. Smith		Replaced by Liberty	No
• Taylor Canyon		Demolished	No
• Hillcrest		In construction	No
• Wasatch		Not completed	Yes
Purchase a portable boiler system that uses diesel fuel in case of an interruption in the gas supply	Ogden School District	Not completed. Redundant systems being implemented in schools to manage failure of initial boiler	No

Table 378: Previous Mitigation Actions of Plain City

Action	Responsible Agency	Status	Should this action be retained in the plan update?
City Hall Seismic Upgrades	City Administration, Public Works, Engineer, etc.	Completed	No
Fire Station Seismic Upgrades	City Administration, Public Works, Engineer, etc.	Not Completed	Yes
Increase City's capability to plan for and respond to an emergency	City Administration, Public Works, Engineer, etc.	Complete Plain City fire dept. Increased coverage by going to a 24hr manned station, instead of volunteer call out, and updated the mutual aid agreements with other jurisdictions in case of an emergency	Yes
Purchase a mobile generator	City Administration, Public Works, Engineer, etc.	Not completed. In the 2024 budget to purchase	Yes
Purchase a trailer to house generator, lights, supplies for emergency situations.	City Administration, Public Works	Completed	No
Chlorine monitor/detector, 4-gas detector	City Administration, Public Works, Engineer, etc.	Not completed	No
Sewer Lift Station to increase capacity	City Administration, Public Works, Engineer, etc.	Updating 2 lift stations per year and adding backup power for	Yes

Action	Responsible Agency	Status	Should this action be retained in the plan update?
		the lift stations not equipped with it.	

Table 379: Previous Mitigation Actions of the City of Pleasant View

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Purchase property to expand source: Little Missouri Spring and Water Reservoir	City Administration, Public Works, Engineer, etc.	This item is in progress.	Yes
Enhance Supervisory Control and Data Acquisition (SCADA): 500 West Water Reservoir	City Administration, Public Works, Engineer, etc.	Completed	No
Enhance security: Jessie Creek Water Reservoir, Well House, Pump, and Generator	City Administration, Public Works, Engineer, etc.	Completed	No
Enhance security: Alder Creek 1 Water Reservoir, Spring	City Administration, Public Works, Engineer, etc.	Completed	No
Enhance security: Alder Creek 2 Water Reservoir, Well House, and Generator	City Administration, Public Works, Engineer, etc.	Completed	No
Enhance security: Mac's Water Reservoir, Well House, Pump and Generator	City Administration, Public Works, Engineer, etc.	Completed	No

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Add a backup generator and enhance security: Fred's Water Reservoir and Well House	City Administration, Public Works, Engineer, etc.	Completed	No
Enhance SCADA for entire water system.	City Administration, Public Works, Engineer, etc.	Completed	No
Install lightening protection for all tanks and wells.	City Administration, Public Works, Engineer, etc.	This item is in progress.	Yes
Public works shop: Seismic retrofit and repair core structural issues	City Administration, Public Works, Engineer, etc.	Completed	No
Dredge and de-silt Barker retention basin	City Administration, Public Works, Engineer, etc.	This item is in progress.	Yes
Replace box and gate infrastructure at the Alder Creek detention basin	City Administration, Public Works, Engineer, etc.	This item is in progress.	Yes
Upgrade 17 detention basins throughout the City	City Administration, Public Works, Engineer, etc.	This item is in progress.	Yes
Remove all canal stormwater collection and channel to detention basins	City Administration, Public Works, Engineer, etc.	This item is in progress.	Yes
Create an Emergency Management Plan	City Administration, Public Works, Engineer, etc.	Completed	No

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Enhance IT network and server security	City Administration, Public Works	Completed	No
Fully equip Emergency Operation Center and complete connection to fiber/analog lines	City Administration, Public Works	Completed	No
Enhance security of the main generator for the City offices.	City Administration, Public Works	Completed	No
Work in tandem with Northview Fire District and homeowners to remove fuels and create fire breaks.	City Administration, Public Works, Fire District staff, etc.	This item is in progress.	Yes
Create a public service campaign to inform residents about fuel reduction, fire breaks, and other mitigation tactics	City Administration, Public Works, Fire District staff, etc.	This item is in progress.	Yes
Conduct a sensitive land study	City Administration, Public Works, Engineer, etc.	This item is in progress.	Yes
Based on study results, implement a slope development ordinance	City Administration, Public Works, Engineer, etc.	Completed	No
Complete and implement an excavation ordinance	City Administration, Public Works, Engineer, etc.	This item is in progress.	Yes

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Conduct a study to determine problem areas	City Administration, Public Works, Engineer, Geotechnical Consultant, etc.	This item is in progress.	Yes

Table 380: Previous Mitigation Actions of the City of Riverdale

Action	Responsible Agency	Status	Should this action be retained in the plan update?
City Emergency Operations Center (EOC) is not functional. Phone lines must be updated, including new phones and computer cabling	Riverdale City, contractors	Not complete	Yes
Identify needs for sustaining long-term EOC operations. Ensure supply of food, water, comfort items, etc.	Riverdale City	Identified staffing, sleeping areas, food and water	Yes
Familiarize staff with WebEOC	Riverdale City	Not complete due to limited staffing of emergency management	Yes
Weber River bank overflow and relief control between Riverdale Mobile Home Estates and City Hall Bridge crossing at 4600 South Street	Riverdale City Engineer, Public Works	Completed	No

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Construct new vehicle/pedestrian bridge at 4600 south over Weber River	Riverdale City Engineer, Public Works	Not complete	No
Riverdale City Park floodplain features	Riverdale City Engineer, Public Works	Completed	No
Remediate and improve utilities throughout Riverdale City and at the Weber River	Riverdale City Engineer, Public Works	Completed	No
Acquire approximately one acre of privately held property for over bank relief control and recreational improvement near 4600 South	Riverdale City Engineer, Public Works	Completed	No
Riprap at bridge crossings 4600 South, Weber River Pathway Bridge south of City Hall and city kayak park trail head.	Riverdale City Engineer, Public Works	Not complete	No
Construct trailway of board walk to allow overbank flows and build offset levee protection for City subdivisions along the Weber River	Riverdale City Engineer, Public Works	Completed	No
Identify possible projects for upgrading	Riverdale City Engineer, Public Works	Raising the trail along the river to assist with flooding by increasing the elevation of the riverbank	Yes

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Conduct a public education campaign	Riverdale City Fire Department	Add educational handouts at public relations events. Work with the city to update and improve the use of social media platforms.	Yes
Establish a redundant water source in the City.	Riverdale City Administration, Public Works	No	No

Table 381: Previous Mitigation Actions of the City of Roy

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Develop and implement emergency operations plans similar to other school districts.	Roy City Administration	Yes	Yes, retain this plan; however, it needs to be updated.
Develop a training document for schoolteachers showing non-structural mitigation activities for classrooms.	Not identified	No	No, no longer relevant. This training should be completed and maintained by the Weber School District.

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Develop an earthquake vulnerability study for identified critical facilities.	Not identified	Not completed yet.	Yes
Implement projects to reduce flooding including ditch piping, curbs and gutters, new catch basins, and upgrades of undersized pipes.	Not identified	Not completed yet.	Yes

Table 382: Previous Mitigation Actions of the City of South Ogden

Action	Responsible Agency	Status	Should this action be retained in the plan update?
City emergency operation planning project with annex for earthquake, flooding, and wildfire.	South Ogden City Staff	Completed	No
Public education campaign	South Ogden City Fire Department	Completed	No
Public education campaign – Fireworks restrictions on wildland–urban interfaces	South Ogden City Fire Department and CERT	Completed	No
Remove or trim trees near overhead power lines	South Ogden City Fire Department and CERT	Completed	No

Action	Responsible Agency	Status	Should this action be retained in the plan update?
CERT members educate community on personal preparedness items, personal emergency preparedness training, and 72 hr. kits	South Ogden City Fire Department and CERT	This is still in progress.	No
Purchase Honda generators (2)	City Fire Chief, Public Works, Engineer, etc.	Completed	No
Purchase durable goods or equipment	City Fire Chief, Public Works, Engineer, etc.	Completed	No
Slip line sanitary sewer to prevent flood damage	Engineering/Public Works	Completed	No
Public Education Campaign – Remove debris from creek and adjacent areas. CERT members patrol areas where grating and debris catch areas might gather limbs and garbage. Report problems to the fire department and public works.	South Ogden City Fire Department and CERT	Completed	No
Public works, CERT and resident education: Remove debris from storm sewer grates. CERT members, residents, and Public Works patrol areas where storm sewer grating catches the debris and garbage. Remove debris or contact public works to help stop local flooding in the event of flash floods.	South Ogden Public Works, CERT and Residents.	Completed	No

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Public Education Campaign Training and education through safety fairs at local churches, businesses, and the South Ogden Fire Department. Education on personal preparedness, first aid training, babysitting classes, fire extinguisher training, CERT training, and structural and content safety before an earthquake.	South Ogden City Fire Department and CERT	CERT members educated the community on personal preparedness items, personal emergency preparedness training, and 72 hr. kits.	No
Provide secondary power for water system by installing standby generators for culinary and secondary pumping/lift stations	Engineer/Public Works	In progress, not completed	Yes

Table 383: Previous Mitigation Actions of the City of Uintah

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Install a separate system that will isolate the ditch system from the storm drain system	Public Works and Engineer	Not completed	Yes
Study and install locations and needs for berms near the Weber River to protect against flooding	Public Works	Completed. Built up and reinforced banks and berms in weak/flooding areas along the Weber River.	No

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Install SCADA to be able to turn off water at the tanks in the event of a main shear	Public Works and Engineer	Completed. Installed SCADA system on water tanks for better control in emergencies	No

Table 384: Previous Mitigation Actions of the City of Washington Terrace

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Seismic upgrade of water tank	Public Works and Engineer	Water tanks #1 and #3 have had seismic upgrades.	No
Provide backup power for water system with a standby generator	Public Works, Engineer, City Administration	The city is actively seeking grant opportunities to fund the purchase of a backup power system for the water infrastructure. This initiative aims to ensure that the water system remains operational during power outages, thereby maintaining reliable water supply and enhancing the community's resilience to emergencies. The backup power system will be crucial for continuous water distribution, particularly during natural disasters or	Yes

Action	Responsible Agency	Status	Should this action be retained in the plan update?
		other situations that disrupt the primary power supply.	
Install more detention basins in the City.	Public Works, Engineer, City Administration	Not complete. The city is looking to install more detention basins in the future. This will be an ongoing process aimed at enhancing stormwater management and flood mitigation capabilities.	Yes
Reduce the possibility of landslides impacting the public works facility, which might impede the ability to provide necessary services to residents.	Public Works, Engineer, City Administration	Completed	No

Table 385: Previous Mitigation Actions of the City of West Haven

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Increase capacity by replacing, upsizing and dredging culverts and pipes in these locations:	City Emergency Manager, Public Works, Engineer		

Action	Responsible Agency	Status	Should this action be retained in the plan update?
• 2550 S – Enlarge pipe and culvert ($250,000)		Completed	No
• Secrest Acres – replace syphon/culvert at Hooper Canal crossing ($75,000)		Completed	No
• 4450 W & 3800 S Culvert ($100,000)		Not completed	Yes
• Howard Slough – Increase capacity and upsize pipe on 3600 S from Midland to 3450 South ($900,000)		Not completed	Yes
• 2700 W (3300 S to 3600 S) – reroute, enlarge pipe & culverts		Completed	No
• Midland & 3450 S – Enlarge culverts & piping ($1M)		Not completed	No, not yet - Awaiting Utah Department of Transportation. No longer relevant at this time.
• 4700 W & 3500 S – Connect the storm drain to 5100 W, increase capacity, add pipe ($250,000)		Completed	No

Action	Responsible Agency	Status	Should this action be retained in the plan update?
• Wilson Slough & Century Mobile Home Park – Increase capacity by dredging ($250,000)		Not completed	No – Cancelled, no longer relevant.
• I-15 and 2200 S (Comfort Suites) – Increase pipe ($90,000)		Not completed	No – Cancelled, no longer relevant.
• Buttermilk Slough – Increase capacity & enlarge 3 culverts ($300,000)		Completed	No
• 2150 S & 2700 W – eliminate connection to Hooper Canal and extend storm drain and connect to the Hooper Slough ($100,000)		Completed	No
• 1668 S & 1900 W (Harbertsons & Weber River) – reinforce and raise bank ($100,000)		Completed	No
• Eliminate 3500 W 4100 S land drain pump station & redirect to Howard Slough ($100,000)		Completed	No
Hooper Canal (4800 S to 3800 S) - above grade canal - break risk	City Emergency Manager, Public Works, Engineer	Not complete	Yes - 2026

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Wilson Canal (21st to Ogden boundary) - above grade canal - break risk	City Emergency Manager, Public Works, Engineer	Not complete	No, no longer relevant. Cancelled
Connect West Haven Water to Taylor West Weber and Bona Vista	City Emergency Manager, Public Works, Engineer, Water Companies	Completed	No
EOC Generator	City Emergency Manager, Public Works, Engineer	Completed	No
Maintenance Shop Generator	City Emergency Manager, Public Works, Engineer	Not complete	Yes - 2028
Sewer Maintenance Building Generator	City Emergency Manager, Public Works, Engineer	Completed	No
EOC Equipment	City Emergency Manager, Public Works, Engineer	Completed	No
Emergency Response Equipment	City Emergency Manager, Public Works, Engineer	Not complete	No, not mitigation action
Emergency Sewer Equipment and Supplies	City Emergency Manager, Public Works, Engineer	Completed	No
Emergency Communication Equipment	City Emergency Manager, Public Works, Engineer	Completed	No

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Increase social media access to emergency information, educate residents concerning cell phone 911 registration, improve & increase methods of distributing emergency information, test emergency communication systems (reverse 911/city notification etc.)	City Emergency Manager	Not complete	Yes - 2025
Train the following personnel: • Mayor • City Council (5) • City Employees (13) • City Contract Personnel (1) • HAM Radio Operators (43 within city boundaries, 7 active ARES*) • CERT Members (105)	City Emergency Manager, Public Works, Engineer	Not complete	Yes - June 2025

Note: ARES = Amateur Radio Emergency Services

Table 386: Previous Mitigation Actions of the Hooper Water Improvement District

The prior plan identified no actions for the Hooper Water Improvement District.

Table 387: Previous Mitigation Actions of the Pineview Water System

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Piping combination sections of the Ogden–Brigham Canal	District General Manager, Engineer	Combination sections have been repaired with a polyurea coating process. The polyurea has stopped water leakage and has given longevity to existing canal.	No
Employ the Supervisory Control and Data Acquisition (SCADA) base unit	District General Manager, Engineer	Not necessary. SCADA can be controlled from multiple mobile devices using cellular modem.	No, no longer relevant.
Wasteway SCADA and Control	District General Manager, Engineer	Complete	No
Canal Control at Surge Tank	District General Manager, Engineer	Complete	No
Regulating gates: WBECD, Perry, NOC, SOCD	District General Manager, Engineer	WBECD is has been completed. SOCD has full monitoring capability, but regulating gates will not be completely operational for approximately 2 years due to monitory constraints.	No
Canal control: SOCD Headend and Ogden–Brigham Canal Headend	District General Manager, Engineer	Complete	No

Table 388: Previous Mitigation Actions of the Roy Water Conservancy District

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Access Manholes for Large Diameter Pipes Under Major Roadway (East Side)	District General Manager, Engineer	Completed	No
Install automatic valve controls for existing large diameter valves located near a major roadway and the District's reservoir.	District General Manager, Engineer	No. There have not been funds available to complete.	Yes
Complete seismic study on existing buildings and infrastructure.	District General Manager, Engineer	No. There have not been funds available to complete.	Yes
Remove and replace existing pump.	District General Manager, Engineer	Completed	No
Waterline replacement in various locations throughout entire water distribution system.	District General Manager, Engineer	No. There have not been funds available to complete every-thing, but some have been com-pleted.	Yes
Service lateral replacement in various loca-tions throughout entire water distribution system.	District General Manager, Engineer	No. There have not been funds available to complete every-thing, but some have been com-pleted.	Yes
Remove and replace concrete reservoir side-walls.	District General Manager, Engineer	No. There have not been funds available to complete.	Yes

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Backup generator for pump house.	District General Manager, Engineer	No. There have not been funds available to complete.	Yes
Backup generator or alternative power source (solar panels) for buildings.	District General Manager, Engineer	No. There have not been funds available to complete.	Yes

Table 389: Previous Mitigation Actions of the Taylor–West Weber Water District

The prior plan identified no actions for the Taylor-West Weber Water District.

Table 390: Previous Mitigation Actions of the Weber–Morgan Health Department

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Develop Infectious Disease Emergency Response (IDER) plan.	Weber–Morgan Health Department (WMHD)	In 2019, the Department received the Public Health Ready Project accreditation, which was a very extensive and detailed process in which the Department had to develop/ provide numerous plans that show how WMHD will function and sustain during a disaster and what the Wahad's capacity will be in 15 public health capabilities. In those plans are a robust IDER and a pandemic/ influenza plan that is scalable and flexible to manage various dispensing and clinic types. At the height of COVID-19, Jan.–May 2021, WMHD was vaccinating an	No

Action	Responsible Agency	Status	Should this action be retained in the plan update?
		estimated 2,000 individuals daily in the OPOD, and during the latter part of 2021, WMHD hosted dozens of mobile clinics.	
Update/implement a Strategic National Stockpile (SNS) plan.	Weber–Morgan Health Department	Not completed	Yes
Develop a Point of Dispensing (POD) program, a system for distributing large quantities of medical material and pharmaceutical supplies to the public in a bioterrorism event.	Weber–Morgan Health Department	Not completed	Yes
Public education, informative booklet: "Family Emergency Preparedness Guide and Flu Home Care Guide."	Weber–Morgan Health Department	The booklet is offered in a PDF version on the WMHD website, and physical copies are offered at the Department and at outreach functions. A Flu Home Care Guide is offered through the nursing division.	No

Table 391: Previous Mitigation Actions of the Weber School District

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Develop and implement a manual similar to that of the Salt Lake City (SLC) school district	School District, County Emergency Management	No manual has been developed and this needs to be revised.	Yes

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Develop a training document for school-teachers showing nonstructural mitigation activities for classrooms.	County Emergency Services, School District	Completed. The district used the Standard Response Protocol (SRP).	No

Table 392: Previous Mitigation Actions of the West Warren–Warren Water Improvement District

The prior plan identified no actions for the West Warren–Warren Water Improvement District

Table 393: Previous Mitigation Actions of the Central Weber Sewer Improvement District

The prior plan identified no actions for the Central Weber Sewer Improvement District.

Table 394: Previous Mitigation Actions of the Weber Fire District

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Work with Ogden City Fire Department to develop an Interagency Wildland–Urban Interface Response Plan and Procedures	County/City Emergency Management, Weber Fire District, Ogden City	Completed; continue to implement	No
Work with cities to develop and implement fireworks restrictions	County/City Emergency Management, Weber Fire District, North View Fire District, Public Officials	Completed; review and update annually	No, no longer relevant (maintenance).

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Identify which stations are vulnerable to the impacts of severe weather.	Fire Chief, Engineer	Completed; evaluate on a regular basis.	No, no longer relevant (maintenance)
Make structural upgrades to impacted stations. • This relates to severe weather, particularly windstorms along the Wasatch Front.	Fire Chief, Engineer, Weber County	Completed	No – no longer relevant, currently replacing station 63 with a new seismic-safe structure.

Table 395: Previous Mitigation Actions of the North View Fire District

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Work with cities to develop and implement fireworks restrictions	County/City Emergency Management, Weber Fire District, North View Fire District, Public Officials	Local ordinances have been passed by North Ogden and Pleasant View to have firework restrictions constantly in place.	No
Seismic Study of Station 21 building	North View Fire District and hired consultants	Not complete. The previous fire chief retired and the District did not realize that the study had to be completed.	Yes

Action	Responsible Agency	Status	Should this action be retained in the plan update?
Seismic retrofit and upgrade of Station 21 based on the study	North View Fire District	Not complete. Since the seismic study was not completed, no additional action or retrofit was done.	Yes

Prioritizing Mitigation Actions

This process was completed by the core planning team, the technical team, and the local planning teams in a series of planning meetings. Each mitigation strategy was given a High, Medium, or Low priority by the planning teams. Not all identified mitigation actions can be implemented in the five-year plan cycle because of technical feasibility, political acceptance, lack of funding, or other constraints. Once the mitigation actions for each participating jurisdiction were identified, they were evaluated and prioritized to identify the most suitable actions for each participating jurisdiction to implement. The actions in this section were prioritized based on FEMA's Social, Technical, Administrative, Political, Legal, Economic, and Environmental (STAPLEE) criteria, which are listed in Table 396. Each plan participant prioritized their new and retained actions based on the STAPLEE criteria.

Table 396: STAPLEE Criteria for Evaluating and Prioritizing Mitigation Actions

Evaluation Category	Description	Considerations
Social	Public support for the overall mitigation strategy and specific mitigation actions.	Community acceptance Adversely affects the population
Technical	A mitigation action that is technically feasible and is a whole or partial solution, it will have minimal secondary impacts.	Technical feasibility Long-term solutions Secondary impacts
Administrative	The community has the personnel and administrative capabilities necessary to implement the action or outside help will be necessary.	Staffing Funding allocation Maintenance/operations
Political	The level of political support for the mitigation action.	Political support Local champion Public support
Legal	Whether the community has the legal authority to implement the action or whether it must pass new regulations.	Local, state, and federal authority Potential legal challenges

When the hazard risk assessment was finalized, capabilities assessed, and mitigation goals established, the County and the jurisdictions set out to identify mitigation actions that would reduce the impacts of the hazards they face. Information from the public and stakeholders on what types of actions the jurisdictions should consider also was evaluated. Mitigation actions are measures, projects, plans, or activities that

would reduce or eliminate the vulnerabilities described in the risk assessment. According to FEMA, there are four types of mitigation actions:

1. **Local Plans and Regulations:** These include government authorities, policies, or codes that influence the way land and buildings are developed and built.

   Examples: comprehensive plans, land use ordinances, subdivision regulations, building codes and enforcement, stormwater management plans, community wildfire protection plans.

2. **Structure and Infrastructure Projects:** These involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures and critical facilities and infrastructure.

   Examples: acquisitions and elevations of structures in flood-prone areas, utility undergrounding, structural retrofits, floodwalls, detention and retention structures, culverts, and safe rooms.

3. **Natural System Protection:** This includes green infrastructure and low-impact development, nature-based solutions, engineering with nature, and bioengineering to incorporate natural features or processes into the built environment. Additional funding opportunities are available for projects that incorporate this kind of action.

   Examples: forest management, land conservation, wetland restoration and preservation, sediment and erosion control, stream corridor restoration, rain gardens, greenways, land conservation, and living shorelines.

4. **Education and Awareness Programs:** These keep residents informed about potential natural disasters. Many of these actions are eligible for funding through FEMA's Hazard Mitigation Assistance (HMA) program.

   Examples: social media outreach, websites with maps and information, presentations to school groups and neighborhood organizations, radio or television spots, mailings to residents in hazard-prone areas, targeted outreach to underserved communities and socially vulnerable populations, and outreach materials in languages other than English.

The jurisdictions were asked to prioritize each natural hazard action being retained or created as low, medium, or high, based on the following definitions:

- **High:** Based on five or more STAPLEE criteria, the action is feasible and important for the jurisdiction and has minimal to no concerns. It is very important for the jurisdiction to implement and may be prioritized in the short term.
- **Medium:** Based on three or four STAPLEE criteria, the action is feasible and important for the jurisdiction, with some potential challenges. Its implementation is less urgent than a high-priority action item and can be implemented over time.
- **Low:** Based on one or two STAPLEE criteria, the action is feasible and important for the jurisdiction, with multiple potential challenges. The action should be implemented as funding becomes available.

Mitigation Action Plans

As a part of this update, each plan participant evaluated and developed their own list of retained, updated, and new mitigation actions for the current 2024 plan, including responsible agencies, timeframes, and potential funding sources. The lead agency is indicated with a "*" by the lead in the Responsible Staff column, where a single one is identified; however, partnerships are acknowledged and encouraged as a vital method for implementing hazard mitigation projects. In some cases, these partnerships may be required by law. According to FEMA for this step, "If coordinating with other agencies will be necessary, this is a good time for them to weigh in on the steps and timeframes necessary to carry out the actions." Where leadership and support is expected from multiple partners, this is indicated by a "*" next to all applicable specific agencies, departments, or positions identified.

Table 397 through Table 423 list the mitigation action plans of the County and the plan participants.

Table 397: 2024 Mitigation Action Plan of Weber County

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Rehabilitate/ rebuild or removal Utaba structure project scoping.	This project is currently in a scoping phase led by the Weber County Engineering Department in partnership with NRSC and Utah Dam Safety. Franson Civil Engineering was awarded the contract to perform the scoping study in Spring of 2024. Historic Preservation and Environmental Impact studies have been completed. Public engagement and outreach process is underway. Geotechnical and Seismic studies for the site are slated to begin Oct. of 2024. The project scope is based on 3 distinct actions available. Do Nothing; This option has been eliminated as the current structure is classified as a High Hazard Dam and is currently out of compliance based on current safety standards. Rehabilitation/Rebuild of the structure: Initial Concept drawings have been submitted to the County for review. Final determinations will be made based on the results of Geotech studies and public comment. Removal of the Structure; cost scoping for the addition of flood	Dam Failure	County Engineering*, County Emergency Management, NRCS		General fund, HHPD, BRIC, HMGP, FMA	$7M–$15M	3–5 years	Water Systems	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		control structures downstream of the current structure and throughout the drainage are being explored. Current impression is this option would be cost prohibitive.								
2	Environmental study and engineering to replace or refit the dam structure		Dam Failure	County Engineering*, state, NRCS		General fund, NRCS, HHPD, BRIC, HMGP, FMA	$1M	3–5 years	Water Systems	High
3	Design new structure based on study		Dam Failure	County Engineering* state, NRCS		General fund, NRCS, HHPD, BRIC, HMGP, FMA	$2M	1–3 years	Water Systems	High
4	Construction of new structure		Dam Failure	County Engineering*/Contracted Service		General fund, NRCS, HHPD, BRIC, HMGP, FMA	$7M–$10M	3–5 years	Water Systems	High
5	Improve seismic resilience at the Weber Center.		Earthquake	County operations*, County engineer, consulting engineer		General fund, FEMA PDM, state earth-quake program grant, BRIC, HMGP	$200,000	3–5 years	Energy, Water Systems	High
6	Repair the levee and complete rip rap and bank stabilization		Flood	County operations*, County engineer, consulting engineer		General fund, FEMA PDM, state earth-quake program grant, BRIC, HMGP, FMA	$3M	3–5 years	Water Systems, Safety and Security	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
	projects to complete improvements.									
7	Increase the capacity of the Burch Creek Railroad Crossing	To prevent flooding local businesses.	Flood	County operations*, County engineer, consulting engineer		General fund, FEMA PDM, CDBG-NDRC, BRIC, HMGP, FMA	$630,000	3–5 years	Safety and Security	High
8	Increase pipe size through intersection at 4100 North 3300 East		Flood	County engineering		General fund, FEMA PDM, BRIC, HMGP, FMA	$40,000	3–5 years	Water Systems	High
9	Improve borrow ditch on 3500 East and 3300 North		Flood	County engineering		General fund, FEMA PDM, BRIC, HMGP, FMA	$75,000	3–5 years	Safety and Security	High
10	Pipe drainage from Nordic Valley Drive to North Fork River down Hwy 162		Flood	County engineering		General fund, FEMA PDM, BRIC, HMGP, FMA	$100,000	3–5 years	Safety and Security	High
11	Eden Acres detention pond or relief from the canal		Flood	County engineering		General fund, FEMA PDM, BRIC, HMGP, FMA	Final Unknown	1–3 years	Safety and Security, Water Systems	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
12	Outlet structure on existing pond	Elkhorn Subdivision; corner of Buckhorn Drive and Elkridge Trail	Flood	County engineering		General fund, FEMA PDM, BRIC, HMGP, FMA	$20,000	1–3 years	Safety and Security	Medium
13	Clean and modify existing storm drain at intersection of Hwy 158 Wolf Creek Drive and 3900 North Elkhorn Trial		Flood	County engineering		General fund, FEMA PDM, BRIC, HMGP, FMA	$12,242	3–5 years	Safety and Security	Medium
14	Define drainage swale and place culvert – Viking Drive and Nordic Valley Way		Flood	County engineering		General fund, FEMA PDM, BRIC, HMGP, FMA	$9,252	3-5years	Safety and Security	Medium
15	Replace and upgrade existing pipe – 3500 East	Across from ski resort	Flood	County engineering		General fund, FEMA PDM, BRIC, HMGP, FMA	$25,220	3–5 years	Safety and Security, Water Systems	Medium
16	Storm drain upgrades by school off Eastwood		Flood	County engineering		General fund, FEMA PDM, BRIC, HMGP, FMA	$250,000	3–5 years	Safety and Security, Water Systems	Medium
17	Warm Springs western drain water, increase pipe size		Flood	County engineering		General fund, FEMA PDM, BRIC, HMGP, FMA	$80,000	3–5 years	Water Systems	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
18	Clean and sterilize Seed Gail Armstrong Drain – 2300 North		Flood	County engineering		General fund, BRIC, HMGP, FMA	$53,280	3–5 years	Safety and Security	Low
19	Catch basins at bottom Elkridge Trail – clean and flush		Flood	County engineering		General fund, BRIC, HMGP, FMA	$30,000	3–5 years	Safety and Security	Low
20	Shooting Range Pipe		Flood	County engineering		General fund, BRIC, HMGP, FMA	$8,000	3–5 years	Water Systems	Low
21	Modify grate on catch basin in detention pond below Moose Hallow		Flood	County engineering		General fund, BRIC, HMGP, FMA	$1,500	3–5 years	Safety and Security	Low
22	Burch Creek – clean rail crossing culverts		Flood	County engineering		General fund, FEMA PDM, BRIC, HMGP, FMA	TBD	3–5 years	Safety and Security, Water Systems	Low
23	Culvert under Hooper Canal and 3300 West		Flood	County engineering		General fund, FEMA PDM, BRIC, HMGP, FMA	$5,000	3–5 years	Safety and Security	Low
24	Walker and Howard Slough Study		Flood	County engineering		General fund, BRIC, HMGP, FMA	$100,000 per drainage	3–5 years	Safety and Security	Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
25	Culvert under 700 North & 7500 West		Flood	County engineering		General fund, BRIC, HMGP, FMA	$10,000	3–5 years	Safety and Security, Water Systems	Low
26	Culvert at 3500 West & 900 South		Flood	County engineering		General fund, BRIC, HMGP, FMA	$25,000	3–5 years	Safety and Security	Low
27	Culvert at 1600 South and 5100 West		Flood	County engineering		General fund, BRIC, HMGP, FMA	$20,000	3–5 years	Safety and Security	Low
28	Long-term sheet flow mitigation project in the area of 2300 North.		Thunderstorm, Winter Storm, Tornado	County Emergency Management*/County Engineering		General fund, FEMA PDM, BRIC, HMGP	$100,000	3–5 years	Safety and Security	Medium
29	Support operations and public education about the Special Needs Registry.	The registry notifies residents that need oxygen, medical equipment, etc. of coming severe storms, extreme heat, power outages and other hazards so they can plan ahead for backup power, obtain extra supplies, and mitigate their risk to the specific hazards addressed.	Avalanche, Dam Failure, Drought, Earthquake, Extreme Cold, Extreme Heat, Flood, Invasive Species, Landslide, Problem Soils, Thunderstorms, Tornado, Wildfire, Winter Storm	County Emergency Management*/County Engineering		BRIC, HMGP	Minimal	3–5 years	Health and Medical, Safety and Security, Communications, Food, Hydration, Shelter	Medium
30	Work with Pineview Water and Ogden City to develop,	Address damages to water systems due to alkaline soils that have caused corrosion to water lines as well as create system	Drought, Problem Soil	Pineview Water Systems Employees*, Ogden City Engineer. Weber County Planning Division		User fees, BRIC, HMGP	$71M	3–5 years	Water Systems	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
	design, and install a secondary water system.	redundancies in the event of hazards like problem soils and drought.								
31	Encourage communities to implement "Firewise" actions.		Wildland Fire	Weber County Fire Warden		General Fund, BRIC, HMGP, HMGP-PF	Minimal	3–5 years	Safety and Security	High
32	Support mitigation efforts as requested by the state	Insect infestation is mitigated by the Utah Department of Agriculture and Food at the state level	Invasive Species	Mosquito Abatement Department* and Health Department		Utah Department of Agriculture and Food, BRIC, HMGP	TBD	3–5 years	Food, Water, and Shelter	Low
33	Drainage on 3300 East culvert to take water to Chicken Creek	Continuation of current drainage system in place.	Flood	County Permitting	Private Landowner/Developer	Private, BRIC, HMGP, FMA		3–5 years	Safety/Security	Low
34	Storm Drain Box – 3786 Abbeyon Drive	Continuation of current drainage system in place.	Flood	County Permitting	Private Landowner/Developer	Private, BRIC, HMGP, FMA		3–5 years	Safety/Security	Low
35	Emergency backup power and seismic upgrades to sewer lift stations.	Add emergency backup power and seismic upgrades to sewer lift stations. Supervisory Control and Data Acquisition (SCADA) to monitor systems.	Earthquake	County operations, County engineer, consulting engineer		BRIC, HMGP	$200,000	5-10 years	Safety/Security	High
36	Fort Buenaventura area	Complete repairs in the Fort Buenaventura area by building sediment ponds and engineered	Flood	County operations, County engineer, consulting engineer		FEMA PDM, CDBG-NDRC, BRIC, HMGP, FMA	$250,000	5-10 years		High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		wetlands to clean the water before it enters the fishing lake								
37	Burch Creek railroad crossing	Increase the capacity of the Burch Creek railroad crossing to prevent the flooding of local businesses	Flood	County operations, County engineer, consulting engineer		FEMA PDM, CDBG-NDRC	$630,000	5-10 years	Safety and Security	High
38	Eden Acres subdivision	Remove 36" pipe in Eden Acres subdivision above structure. Currently piped to meet septic tanks approvals but causing flooding concerns. Will have to be lined if opened.	Flood	County engineering		Capital improvement budget	$15,600.00	5-10 years	Safety and Security	High
39	3300 East and 4100 North	Improve barrow ditch on 3300 East and 4100 North. Increase pipe size through intersection,	Flood	County engineering		Capital improvement budget	$15,264.00	1-2 years	Safety and Security	High
40	Nordic Valley Drive to North Fork River down Hwy 162	Improve drainage from Nordic Valley Drive to North Fork River down Hwy 162	Flood	County engineering		General fund, FEMA PDM, PA Mitigation	$100,000	3–5 years	Safety and Security	High
41	Storm drain piping 4550 West at 2847 South	Currently in the design phase.	Flood	County engineering		Capital improvement budget	$78,972.00	1-3 years	Safety and Security	High
42	Elkhorn Subdivision; corner of Buckhorn Drive and Elkridge Trail	Outlet structure on existing pond, Elkhorn Subdivision; corner of Buckhorn Drive and Elkridge Trail	Flood	County engineering		General fund, BRIC	$20,000	3 years	Safety and Security	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
43	Pipe Warm Springs western drain water	Pipe in the area is undersized.	Flood	County engineering		Capital improvement budget	$2,000	3-5 years	Water Systems	Medium
44	Increase pipe size at Warm Springs western drain		Flood	County engineering		General fund, State, FEMA PDM	$80,000	In progress (less than 5 years)	Water Systems	Medium
45	Combe Road Inlet Box	Modify inlet box to keep water from sheeting across the road	Flood	County engineering		Capital improvement budget	$5,000	In design (less than 5 years)	Safety and Security	Medium
46	Drainage at 3678 East 4350 North, Liberty		Flood	County engineering		Capital improvement budget	$114,222.00	5-10 years	Safety and Security	Medium
48	Combe Road Asphalt Gutter		Flood	County engineering		Capital improvement budget	Unknown	5-10 years		Low
49	Culvert on 6700 West & 2550 North		Flood	County engineering		Capital improvement budget	$5,000	5-10 years		Low
50	Rice Creek Detention Basin		Flood	County engineering		Capital improvement budget, BRIC	Unknown	5-10 years		Low
51	Culvert on 5900 West & 2400 North		Flood	County engineering		Capital improvement budget	$5,000	5-10 years		Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
52	Culvert under 700 North & 7000 West		Flood	County engineering		Capital improvement budget	$5,000	5-10 years		Low
53	Culvert on 1900 North about 6350 West		Flood	County engineering		Capital improvement budget	$5,000	5-10 years		Low
54	Culvert under 6700 West & 250 North		Flood	County engineering		Capital improvement budget	$5,000	5-10 years		Low
55	West side of the road to Fenster Farms	Catch basin and pipe to Connect the West side of the road to Fenster Farms. Creation of emergency overflow channel in the event of river breach above the current relief channel	Flood	County engineering		Capital improvement budget	Unknown	5-10 years		Low
56	Conduct public education regarding the Special Needs Registry and study and plan for high-risk areas.	Continue to support operations and public education regarding the Special Needs Registry, which notifies residents that need oxygen, medical equipment, etc. of coming severe storms, extreme heat, power outages, and other hazards so they can plan ahead for backup power, obtain extra supplies, etc. Utilize this access data base to plan to accommodate/or fill the gap for those needs outside of normal operations. For instance, identify a	Avalanche, Dam Failure, Drought, Earthquake, Extreme Cold, Extreme Heat, Flood, Invasive Species, Landslide, Problem Soils, Thunderstorms, Tornado, Wildfire, Winter Storm	County Emergency Management/County Engineering		HMGP	Minimal	1 year	Health and Medical, Safety and Security, Communications, Food, Hydration, Shelter	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		facility that may house a group of individuals with cognitive or information processing abilities within one of our WUI areas. Then, reach out with pre-event messaging and information to educate and better inform that group on how to mitigate their risk to that fire. Additional populations of concern include individuals using home medical devices or elderly individuals who would be at high risk for issues due to impacts on community lifelines like power systems. Similarly, this could be used to educate populations at risk to hazards like avalanche, landslide, etc. By identifying and providing support to vulnerable populations, the County will be able to reduce disaster impacts.								
57	Public Awareness Program- "Firewise"	Continue to encourage communities to implement "Firewise" actions.	Wildfire	County Emergency Management/ Weber County Fire Warden		County EM budget	Minimal	1-5 years (Annual implementation)		Medium

Table 398: 2024 Mitigation Action Plan of Farr West City

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Sewer and Storm Drain Mapping Project	Conduct periodic updates of mapping of sewer and storm drains and upgrades to the systems to mitigate major impacts to infrastructure from identified natural hazards	Earthquake, Flood, Thunderstorms, Problem Soils,	Public Works Department	Potential partners are adjoining cities. The coordination with State and Federal agencies.	BRIC, HMGP, Staff time	$20,000	1–3 years	Water Systems	Low
2	Construct 5-acre Pond/Park for flood mitigation.	Address flooding caused by heavy rains or heavy snow melt. Protect property from flooding. Adapt to growth of city.	Flood, Thunderstorms	City Works Department*, Planning Committee	The potential partners would be the developers that will be given the requirement to direct or divert the run off from new projects and builds.	WACOG, private donations	TBD	5+ years	Water Systems, Safety and Security	Low
3	Develop and disseminate water reduction suggestions for the public and agricultural communities.	Pre-plan and educate before a need arises. The requirements to control water resource and to act upon the conditions will be at the City Council level to follow directive or to enforce the directive that may be levied to the city. The Public Works personnel will work in unison with the City Council to control resource as required.	Drought	City Council* and public works personnel.	County, State and Federal agencies	WACOG, County State Emergency Management or federal funding sources such as FEMA or funds from federal agricultural authorities, BRIC, HMGP	Unknown	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High
4	Evaluate and develop an ordinance for the use	Pre-plan for the use of limited water resources	Drought	City Council*, Public Works personnel.	County, State and Federal water	Staff time, BRIC	Unknown	3–5 years	Safety and security, food, hydration, water, health and medical,	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
	or waste of water resources.				management organizations				energy, transportation, communications, hazardous materials.	
5	Partner with the Red Cross to develop a comprehensive assistance plan including identifying seismically sound structures for sheltering.	It is highly advisable to create plans to work with and utilize the services the Red Cross has to offer during emergencies including establishing seismically sound structures for shelters. This could be useful primarily during earthquakes, but also for any hazards that could displace people from shelter.	Earthquake, Dam Failure, Extreme Heat, Extreme Cold, Wildfire	City Emergency Management* and City Council with assistance from the CERT Committee.	Red Cross, County, State and Federal support agencies determined by the expansiveness of the Emergency.	Red Cross, Staff Time	Unknown	1-2 years	Food, Hydration, Shelter	High
6	Conduct structural assignment of city buildings and structures to determine seismic retrofit needs.	Physical inspections of city buildings and structures to determine if there would be a need for any modifications to enhance their ability to withstand seismic activities. Create a status and remediation plan for each structure. Identify or contract with additional engineering resources to inspect and create a status and remediation plan for each structure.	Earthquake	City Council*, along with Public Works, County engineering		WACOG, BRIC	$100,000	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	Medium
7	Establish Warming Centers for	Retrofit city buildings as needed to act as an emergency shelter for residents and inhabitants.	Extreme Cold	City Council*, Public Works , engineering		WACOG, BRIC, HMGP	$10,000 or less	3–5 years	Safety and security, food, hydration, water, health and medical,	Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
	Extreme Cold Events								energy, transportation, communications, hazardous materials.	
8	Public Awareness Program on Extreme Heat and Cold Risk	Educational opportunity to teach or to remind people within the city of the potential of extreme heat or extreme Cold environmental conditions to include human preparations and reactions to extreme weather, education regarding livestock or personal property.	Extreme Cold, Extreme Heat	Emergency Management* and Public Health Department		Staff time, BRIC, HMGP	$1000	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	Medium
9	Assess city building and facilities and upgrade with proper insulation.	Create a status and remediation plan for each structure.	Extreme Heat	City Council*, Public Work, engineering		WACOG, BRIC, HMGP	$10,000	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	Low
10	Public Awareness Education Program on Thunderstorms	Ensure widest dissemination of information to the public with regard to preparations and awareness of Thunderstorms and how	Thunderstorm	City Council, Emergency Preparedness and CERT*.	BRIC, HMGP	City, County, State or Federal educational and	Approximately $1000	3–5 years	Safety and security, food, hydration, water, health and medical, energy,	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		to be prepared and mitigate risk, including education about how thunderstorms can impact public and private infrastructure along with ways to retrofit and mitigate this risk				Emergency preparedness grants			transportation, communications, hazardous materials.	
12	Develop Fire-resistant zones and clearings around structures and infrastructure that should be defended.	Educate residents and landowners of preventative measures, that could prevent destruction during a wildfire	Wildfire	City Council	BRIC, HMGP, HMGP-PF	City, County, State and Federal Fire prevention grants	$1000.	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High

Table 399: 2024 Mitigation Action Plan of the City of Harrisville

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Educate residents on water-saving techniques	Includes information on government incentives like flip your strip, passing out pamphlets and information, and partnering with water providers to send education materials with bills	Drought	Emergency Manager* and Administrative Staff	Bona Vista water, Pine View water systems	Emergency management funds, Newsletter funds, BRIC, HMGP	$1000 annually	1 year	Food, Hydration, Shelter.	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
2	Increase awareness of extreme temperature risk and safety	Educate residents regarding the dangers of extreme heat and cold, targeting vulnerable populations like the elderly who are at an increased risk of these dangers	Extreme Heat, Extreme Cold	Emergency Manager	LDS Church, Lutheran Church	Emergency management funds, BRIC, HMGP	$1000 annually	1 year	Food, Hydration, Shelter. Safety and Security	Medium
3	Develop and maintain long-term development plans	To ensure new developments meet or exceed mitigation standards	Flood, Problem Soils	City Planner, Engineer*, Flood Plain Manager.		Funding for this program is paid by developers.	$0	3–5 years	Safety and Security, Water Systems	Medium
4	Develop long term plan to replace city office buildings with modern structures that will safely house all city services		Earthquake, Flood	City Administrator*, City Planner		Storm Water, Parks funds, allocated city funding and possible bonds, FMA, BRIC, HMGP	$10M	3–5 years	Safety and Security	Medium
5	Upgrade stormwater infrastructure under Highway 89	This choking point for stormwater has caused flooding because it could not handle the stormwater that goes through it. This would also help with high-water levels in the dam and Independence Park. In 2023 due to a large amount of snowpack and spring rains, there was flooding. Increasing water flow at that point would have reduced flooding.	Flood, Dam Failure	Public Works*, City Planner		Storm water fund, capital projects funds, BRIC grants., FMA, HMGP	$1,500,000	3–5 years	Safety and Security, Water Systems	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
6	Protect critical facilities and equipment	Protect critical infrastructure by making sure new developments with critical infrastructure have lightning protection devices and old buildings are retrofitted with devices. Ensure all critical electronic devices have surge protection.	Thunderstorm	Public Works* and City Planning		General fund, BRIC, HMGP	$10,000	3–5 years	Safety and Security, Communications	Medium
7	Conduct tornado awareness activities	Hold tornado awareness training; participate in local preparedness fairs and days; support severe weather awareness week and conduct drills in public buildings. This will help mitigate tornado risk by helping to make sure those who participate in training are aware of best practices.	Tornado	Emergency Management	LDS and Lutheran church.	Emergency management fund	$1000 Annually	1 year	Safety and Security	Low
8	Coordinate with North View Fire District to host semiannual trainings and "slash and clean-up days"	Host training about wildfire prevention and mitigation Also work with North View Fire to help organize volunteers for "slash and burn days" and "chipper days" These activities will help clear vegetation and fuel in risk areas.	Wildfire	Emergency Management*, Public Works	North View Fire, LDS church, Lutheran church, Walmart, other local business	Emergency Management funds.	$0	1 year	Safety and Security	Medium
9	Conduct invasive species trainings	Conduct training for invasive species best practices, including hosting training, distributing educational materials, and working with partners like Pine View	Invasive Species	Emergency Management*, Public Works, City Planning	Pine View Water Systems	Emergency management funds	$1000 Annually	1 year	Safety and Security	Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		Water Systems to encourage natural landscaping with native plants								
10	Purchase emergency generator for new public works building and new public safety building		Winter Storms	Public Works*, Emergency Management		General fund, Capital project funds, bonds	$100,000	3–5 years	Safety and Security, Communications	Medium

Table 400: 2024 Mitigation Action Plan of the City of Hooper

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Install transfer switches at City Shops and City Hall for the generator (CAT XT125) received Fall 2023	Provide electricity for emergency needs in the event of power failure	Thunderstorm, Winter Storm, Earthquake, Extreme Heat, Extreme Cold, Flood	Public Works* & electrical contractor(s)		BRIC, HMGP, FMA	TBD	1 year	Energy	Medium
2	Purchase a generator for City Hall	For the ECC command center in the event of an emergency	Thunderstorm, Winter Storm, Earthquake, Extreme Heat, Extreme Cold, Flood	Public Works* & electrical contractor(s)		BRIC, HMGP, FMA	TBD	1 year	Energy, Safety and Security	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
3	Upgrade storm water infrastructure		Flood, Thunderstorm	Public Works		BRIC, HMGP, FMA	TBD	3–5 years	Water Systems	Medium
4	Add irrigation ditches and canals	Design water delivery systems to mitigate drought events and increase water retention by installing irrigation ditches and canals which facilitate the access to stored water. Irrigation reduces the impacts of drought by making water more accessible to users, such as the agricultural industry.	Drought	Public Works		BRIC, HMGP,	TBD	3–5 years	Water Systems	Low
5	Evaluate opportunities to expand upon and implement zoning for buildings which incorporates hazard risks		Dam Failure, Earthquake, Flood, Thunderstorm, Winter Storm	City Council		BRIC, HMGP, FMA	Minimal	3–5 years	Safety and Security; Food, Hydration, Shelter	Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
6	Share mitigation information with the public at events including the Emergency Preparedness fair	Support mitigation outreach to the public including opportunities like the Emergency Preparedness Fair and direct outreach to WUI communities. Collaborate with County staff to reach high-risk areas and share information on how to reduce risk from the hazards addressed.	Dam Failure, Drought, Earthquake, Extreme Cold, Extreme Heat, Flood, Invasive Species, Thunderstorms, Wildfire, Winter Storms	Emergency Manager	County Fire Warden	BRIC, HMGP, HMGP-PF, FMA	Minimal	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High
7	Partner with the Weber Morgan Health Department to develop and implement a public outreach program on mitigation for vulnerable populations.		Dam Failure, Drought, Earthquake, Extreme Cold, Extreme Heat, Flood, Invasive Species, Thunderstorms, Wildfire, Winter Storms	Emergency Manager	Weber Morgan Health Department	BRIC, HMGP, HMGP-PF, FMA	Minimal	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High
8	Develop routine sustainable mock exercises		Dam Failure, Drought, Earthquake, Extreme Cold, Extreme Heat, Flood, Invasive Species, Thunderstorms, Wildfire, Winter Storms	Emergency Manager	Weber Morgan Health Department team with county CERT and Fire department	BRIC, HMGP, HMGP-PF, FMA	Minimal	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High

Table 401: 2024 Mitigation Action Plan of the City of Huntsville

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Develop reliable maps of the water system using GPS ties to the GIS map	Provide uninterrupted water supply for the community	Dam Failure, Earthquake	Mayor, Town Council*, Emergency Manager		BRIC, HMGP, FMA	To be determined	1 year	Water Systems	Medium
2	Town Emergency Response Plan	Create a Town Emergency Response Plan	Thunderstorm, Dam failure, Wildfire, Drought, Winter Storm, Earthquake, Extreme Cold, Extreme Heat Flood	Mayor*, Town Council, Emergency Manager		BRIC, HMGP, HMGP-PF, FMA	$1000	1–3 years	Safety and security	High
3	Improve citizens emergency preparedness	Community educational classes about emergency preparation for families and individuals. part in emergency response plans	Thunderstorm, Dam failure, Wildfire, Drought, Winter Storm, Earthquake, Extreme Cold, Extreme Heat, Flood	Emergency Manager*, Citizens		BRIC, HMGP, HMGP-PF, FMA		1 year	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	Medium
4	Address flood erosion into lake	Work with Forrest Service to help stop erosion on north side of cemetery next to the lake.	Flood, Thunderstorms	Mayor*, Town Council	Forest Service	Forest Service Grant Funds, BRIC, HMGP, FMA		3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
5	South Fork flood mitigation study	Fund a study that will determine flood mitigation on South Fork that will coordinate with FEMA flood zones and property needs.	Flood	Mayor*, Town Council		HMGP, FMA, BRIC	Unknown	5 years	Food, Water, Shelter	High
6	Obtain Back-Up Power For Shelter	Town Hall can be used as a shelter in the event of a disaster event. Extreme heat is primarily an issue if people don't have AC and when power goes out. During power outages including power safety shutoffs, extreme cold can also be dangerous, especially for vulnerable populations like the elderly. By obtaining back-up power, the impact of this and other hazards on public health will be reduced.	Extreme Heat, Extreme Cold	Town Council		HMGP, PDM	$500,000	5 years+	Food, Water, Shelter	Low
7	Conduct Wildfire Public Outreach and Awareness Campaign	Update town website to include wildfire mitigation measures; share information on County classes on WUI mitigation including defensible space and home hardening. Add disaster mitigation information to town water bill which is shared with residents.	Wildfire	Town Council (Bruce), Town Clerk	Weber County OES	Staff Time	Low (staff time)	1 year		High
8	Increase Public Awareness of Disasters and Mitigation Measures	Update the website and share via social media Coordinate with local community member working to develop a list of relevant resources. For example, data such as: • Tree care/pruning to mitigate storm damage (Thunderstorm, Winter Storm) • Water conservation measures and xeriscaping (Drought) • Home weatherization projects (Winter Storm, Extreme Cold, Extreme Heat) • Home hardening and defensible space (Wildfire) • Home retrofits including nonstructural retrofits (Earthquake)	Thunderstorm, Dam Failure, Wildfire, Drought, Winter Storm, Earthquake, Extreme Cold, Extreme Heat, Flood	Town Council, Town Clerk		Staff Time	Low (staff time)	1 year		High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		• Local flood risk data including how to identify flood zones and prepare properties (Flood)								

Table 402: 2024 Mitigation Action Plan of the City of Marriott–Slaterville

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Floodplain and Flood Mitigation	Floodplain and Flood Mitigation. Property acquisition and structure demolition/ relocation along flood plain areas and adjoining properties, localized/non-localized flood reduction projects such as completing an H&H study on the Mill Creek corridor, survey known hazard areas, rip-rap projects along the Weber River, Mill Creek, and 4-Mile Creek. All of these areas will be impacted by a dam failure.	Flood	City Administration*, Public Works, Engineering		BRIC, HMGP, FMA	$50M	3–5 years	Safety and Security	High
2	Address and upgrade aging roads, curb and gutter, secondary water, storm drain, and sewer lines.	Increase in population and demand strains the aging infrastructure; occurrence of any one or more of these hazards could easily	Drought, Invasive Species, Flood, Winter Storm, Dam Failure, Earthquake	City Administration*, Public Works, Engineering		BRIC, HMGP, PA Mitigation, FMA	$2M	3–5 years	Safety and Security	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		overburden these infrastructure systems.								
3	Public Works and Safety Projects to invest in more resilient construction methods.	Structural/ nonstructural retrofitting of buildings and facilities, safe room construction, building and landscape measures to reduce the impacts of earthquake, flood, wind, and problem soils, weatherization and prepare for extreme heat days including for use in critical facilities as needed, defensive space landscaping for wildfire mitigation.	Earthquake, Flood, Problem Soils, Tornado, Wildfire, Winter Storms	City Administration*, Public Works, Engineering		BRIC, HMGP, HMGP-PF, FMA	$5M	3–5 years	Safety and Security	High
4	Structure Preservation. Mitigation Reconstruction, Public outreach and education.	Structure Preservation. Mitigation reconstruction, dry flood proofing non-residential/residential historic structures. Add information in the city newsletter and online regarding flood hazards as well as mitigation strategies.	Flood, Dam Failure	City Administration*, Engineering		BRIC, HMGP, FMA	$5,000,000	Depending on funding, 3-5 years		High

Table 403: 2024 Mitigation Action Plan of the City of North Ogden

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Continue ultra-lining sewer mains		Earthquake, Flood	Public Works*, Engineer, etc.		BRIC, HMGP	Unknown	3–5 years	Water Systems	High
3	Upgrade storm-water system and drains city wide		Flood	Public Works*, Engineer, etc.		BRIC, HMGP, FMA	Unknown	3–5 years	Water System	High
4	Construct Storm-water regional detention basin		Flood	Public Works*, Engineer, etc.		BRIC, HMGP, FMA	Unknown	3–5 years	Water Systems	High
5	Develop and implement zoning ordinance to control slope and retaining capabilities		Landslide	City Engineer*, Public Works, Planning		BRIC, HMGP,	Unknown	1 year	Food, Hydration, Shelter	Medium
6	Conduct outreach program for extreme temperature safety	Includes targeted outreach to seniors and those with disabilities to teach property safety procedures	Extreme Cold, Extreme Heat	City Emergency Management	County EM	BRIC, HMGP	Unknown	1 year	Food, Hydration, and Shelter	Medium
7	Adopt and enforce firesafe building ordinance requiring certain areas to be built to specific standards		Wildfire	City Engineer, Planning		BRIC, HMGP, HMGP-PF	Unknown	1 year	Food, Hydration, Shelter	Medium
8	Conduct outreach and education program to at-risk populations	Provide educational resources to homeowners and renters on what	Winter Storm	City Emergency Management*, Public Works	County Emergency Management	BRIC, HMGP, FMA	Unknown	1 year	Food, Hydration, Shelter	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		measures can be taken to mitigate risk to winter storms such as home weatherization projects and installing carbon monoxide alarms.								

Table 404: 2024 Mitigation Action Plan of the City of Ogden

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Seismic proofing of Ogden Airport Terminal Tower		Earthquake	Ogden Airport Management* (Brian Condie), Engineering, Public Works		BRIC, HMGP	Unknown	1 year	Transportation	High
2	Replace ineffective and dangerous dip stones through-out the city		Flood	Department of Public Works, Engineering* (Taylor Nielsen)		BRIC, HMGP, FMA	Unknown	3–5 years	Safety and Security	High
3	Slip line sanitary sewers to prevent flooding damage		Flood, Thunderstorm, Winter Storm	Department of Public Works* (Taylor Nielsen), Engineering		BRIC, HMGP, FMA	$162M	3–5 years	Water Systems	High
4	Remodel the Ogden City Airport basement	To accommodate emergency sheltering	Extreme Heat and Cold, Tornado	Department of Public Works, Engineering, Airport Management* (Brian Condie)		Private, BRIC, HMGP	Unknown	3–5 years	Food, Shelter, Hydration, Transportation	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
5	Replace Ogden Canyon infra-structure	Replace and maintain distribution system that crosses a fault line	Earthquake, Dam Failure, Landslide	Department of Public Works, Engineering* (Taylor Nielsen), and Water Department		BRIC, BIL,, HMGP, FMA	$100M	3–5 years	Water System	High
6	Replace old water tanks with a 2.5 million gallon tank at 46th street	Tanks are near the fault line	Earthquake, Drought	Department of Public Works, Engineering* (Taylor Nielsen), and Water Department		BRIC, HMGP	$3.5M	3–5 years	Water System	High
7	Replace and/or retrofit old water maintenance/storage pipes	Regularly check for leaks to minimize water supply losses. The current system has many leaks. Leaks reduce water supply. Drought-related factors such as decreased water flow can further compromise water systems. Create system redundancies to ensure systems are not disrupted during a drought event.	Drought	Department of Water Department		BRIC, HMGP	$72M	3–5 years	Water System	High
8	Reduce threat of flooding to residents, infrastructure, and property	Capacity-related projects for sewer system	Flooding, Winter Storm	Department of Public Works		BRIC, HMGP, CDBG, PA Mitigation, FMA	$37M	3–5 years	Water System	Medium
9	Retrofit or install new water systems designed to address current inadequate	Increase capacity and pressure in existing lines near foothills in accordance with the latest adopted international fire code such as by	Wildfire	Department of Public Works, Water Department, Engineering* (Brady Herd)		BRIC, HMGP, HMGP-PF	Unknown	3–5 years	Water System	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
	fire flow in urban interface	upgrading water infrastructure and providing redundancies to the water supply infrastructure. Upgrading water supply infrastructure reduces risk of wildfire impacts.								
10	Strengthen Flood Resilience in Inundation Zones Below Sullivan Hollow and Beus Pond Dams	Evaluate structures and implement flood protection measures, while adopting and enforcing land use ordinances in inundation zones downstream of the Sullivan Hollow* and Beus Pond dams. *HHPD	Dam Failure, Flooding, Property and Infrastructure Damage	Department of Public Works, Engineering* (Taylor Nielsen)		HPDG	Unknown	3-5 Years		Medium
11	Alluvial Fan Hazard Mitigation and Risk Reduction	Mitigate risks from alluvial fans by identifying hazard zones, evaluating flood potential, and implementing land use regulations and structural controls such as debris basins, channel linings, and elevated construction requirements.	Flood	Department of Public Works, Engineering* (Taylor Nielsen)		BRIC, HMGP, LPDM	Unknown	3-5 Years		Medium
12	Update and Correct FEMA Floodplain Mapping Near 21st Street Pond	Conduct a study to revise FEMA floodplain maps near 21st Street Pond to improve accuracy, guide development, and reduce flood risk	Flood	Department of Public Works, Engineering* (Taylor Nielsen)		BRIC, CAP-SSSE	Unknown	3-5 Years		Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		due to outdated or incorrect mapping.								

Table 405: 2024 Mitigation Action Plan of the Ogden School District

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Relocate Students/School Facilities Out of the High-Risk Floodplain	There are two school facilities directly in the floodplain that would be most at risk in the event of (Pineview) dam failure or catastrophic flooding. The district has closed one of the facilities (Gramercy Elementary) for comprehensive school programming is developing a strategy for consolidation of the other facility (Mound Fort Junior High) to relocate students to schools outside of the floodplain.	Dam Failure, Flood	Superintendent*, Facilities Manager, CFO		Capital Improvements Budget, Lease Revenue Bonds, GO Bonds	$75–$150M	3–5 years	Food, Water, Shelter	Low
2	Renovative, Replace, or Relocate Facilities to Mitigate Impacts of Earthquake	Seismically unsound school buildings are being reinforced, replaced, or closed. Bonneville Elementary School, Gramercy Elementary School, Older sections	Earthquake	Superintendent*, Facilities Manager, CFO		Capital Improvements budget, Lease Revenue Bonds, GO Bonds	$250–$300M	3–5 years	Food, Water, Shelter	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		of James Madison Elementary School, Wasatch Elementary School, Highland Junior High School, Mound Fort Junior High School, Mount Ogden Junior High School, George Washington High School. Structural or non-structural retrofit measures can reduce earthquake risk.								
3	Renovate Facilities or Relocate Operations Due to Extreme Heat/Extreme Cold	Older school buildings with construction and systems less capable of handling extreme heat/cold have been replaced, renovated, or closed. The buildings still in operation that would be considered for additional potential mitigation actions including renovations to reduce risk are: Highland Jr. High, Mound Fort Jr. High, George Washington High School. Weatherization, HVAC upgrades, and other mitigation measures can help reduce risk. Installing lightning protection systems.	Extreme Cold, Extreme Heat	Superintendent*, Facilities Manager, CFO		Capital Improvements budget, Lease Revenue Bonds, GO Bonds	$200,000	3–5 years	Food, Water, Shelter	Low
5	Ground Monitoring	Place sensors to monitor ground movement near	Landslide	Facilities Manager		Capital Improvements budget,	$20,000	3–5 years	Food, Water, Shelter	Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		Shadow Valley Elementary School				Lease Revenue Bonds, GO Bonds				
6	Renovative, Replace, or Relocate Facilities to Mitigate Impacts of Thunderstorms	Older school buildings with construction and systems less capable of handling extreme thunderstorms have been replaced, renovated or closed. The buildings still in operation that would be considered for additional potential action are: Highland Jr. High, Mound Fort Jr. High, George Washington High School Buildings have been renovated or rebuilt to withstand severe weather conditions or closed. Installing lightning protection systems, grounding systems, installing surge protectors, and weatherizing structures can reduce risk.	Thunderstorm	Superintendent*, Facilities Manager, CFO		Capital Improvements budget, Lease Revenue Bonds, GO Bonds	$1.8M	3–5 years	Food, Water, Shelter	Low
7	Renovative, Replace, or Relocate Facilities to Mitigate Impacts of Tornadoes.	Older school buildings with construction and systems less capable of handling extreme winds or tornados have been replaced, renovated or closed. The buildings still in operation that would be considered for additional potential action are:	Tornado	Superintendent*, Facilities Manager, CFO		Capital Improvements budget, Lease Revenue Bonds, GO Bonds	$1.8M	3–5 years	Food, Water, Shelter	Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		Highland Jr. High, Mound Fort Jr. High, George Washington High School. Utilizing wind-resistant building materials and design features can reduce risk.								
8	Implement Wildfire Mitigation / Defensible Space Program	Reduce potential for and/or provide suppression measures for potential wildfire near Shadow Valley Elementary. Wildfire mitigation includes clear of dead vegetation and ensuring the wildland grasses on the hillside east of the school are managed.	Wildfire	Superintendent*, Facilities Manager, CFO	Ogden City, Weber County, Utah DNR,* U.S. BLM, U.S. Forest Service	Capital Improvements budget, Lease Revenue Bonds, GO Bonds	$500	3–5 years	Food, Water, Shelter	Low
9	Renovative, Replace, or Relocate Facilities to Mitigate Impacts of Winter Storms	Older school buildings with construction and systems less capable of handling extreme winds or tornados have been replaced, renovated or closed. The buildings still in operation that would be considered for additional potential action are: Highland Jr. High, Mound Fort Jr. High, George Washington High School. Reducing heat loss, ensuring adequate heating and	Winter Storm	Superintendent*, Facilities Manager, CFO		Capital Improvements budget, Lease Revenue Bonds, GO Bonds	$1.8M	3–5 years	Food, Water, Shelter	Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		ventilation, and maintaining energy and water systems								
10	Purchase Generators	Purchase generator for the following buildings: Schools - Highland, Mound Fort, Wasatch. Mitigate risk to facilities and operations if power systems are disrupted due to an earthquake or other significant hazard event. Maintain power and temperatures at a sufficient level for vulnerable populations including students.	Earthquake, Extreme Heat, Extreme Cold, Flood, Thunderstorms, Tornado, Wildfire, Winter Storms	Ogden School District, Engineer		HMGP	Unknown	3-5 years	Food, Water, Shelter	Medium

*Note: DNR = Department of Natural Resources; BLM = Bureau of Land Management

Table 406: 2024 Mitigation Action Plan of Plain City

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Fire Station Seismic Upgrades		Earthquake	Mayor*, City Administration, Public Works, Engineer, etc.		BRIC, HMGP	To be determined	3–5 years	Safety and Security	High
2	Purchase a generator for City Hall		Flood and Earthquake	Mayor*, City Administration, Public Works, Engineer, etc.		BRIC, HMGP, FMA	TBD	1 year	Energy	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
3	Purchase a mobile generator		Flood, Earthquake	Mayor*, City Administration, Public Works, Engineer, etc.		HMGP	$15,000	1 year	Energy	Medium
4	Sewer Lift Station	To increase capacity	Flood and Earthquake	Mayor*, City Administration, Public Works, Engineer, etc.		BRIC, HMGP, FMA	$170,000 for basic lift station, $300,000 for equipped lift station	3–5 years	Water Systems	Low
5	Lift Station #3 (2200 N 4160 W) full rehab plus generator		Tornado, Dam Failure, Earthquake, Flood	Mayor*, Engineering, Public Works		BRIC, HMGP, FMA	$130,000 for Generator and Rehab	1–3 years	Water Systems, Energy	High
6	Lift Station #12 (1900 N 3150 W) full rehab plus generator		Tornado, Dam Failure, Earthquake, Flood	Mayor*, Engineering, Public Works		BRIC, HMGP, FMA	$130,000 for Generator and Rehab	1–3 years	Water Systems, Energy	High
7	Lift Station #1 (5100 W 2860 N) full rehab plus generator		Tornado, Dam Failure, Earthquake, Flood	Mayor*, Engineering, Public Works		BRIC, HMGP, FMA	$130,000 for Generator and Rehab	1–3 years	Water Systems, Energy	High
8	Lift Station #9 (1975 N 4150 W) full rehab plus generator		Tornado, Dam Failure, Earthquake, Flood	Mayor*, Engineering, Public Works		BRIC, HMGP, FMA	$130,000 for Generator and Install	1–3 years	Water Systems, Energy	High
9	Lift Station #8 (4150 W 1550 N) generator only		Tornado, Dam Failure, Earthquake, Flood	Mayor*, Engineering, Public Works		BRIC, HMGP, FMA	$64,000 for Generator and Install	1–3 years	Water Systems, Energy	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
10	Lift Station #13 (2600 N 3550 W) full rehab plus generator		Tornado, Dam Failure, Earthquake, Flood	Mayor*, Engineering, Public Works		BRIC, HMGP, FMA	$130,000 for Generator and Install	1–3 years	Water Systems, Energy	High
11	Lift Station #2 (2200 N 4160 W) generator only		Tornado, Dam Failure, Earthquake, Flood	Mayor*, Engineering, Public Works		BRIC, HMGP, FMA	$64,000 for Generator and Install	1–3 years	Water Systems, Energy	High
12	Lift Station #5 (4700 W) full rehab plus generator		Tornado, Dam Failure, Earthquake, Flood	Mayor*, Engineering, Public Works	,	BRIC, HMGP, FMA	$130,000 for Generator and Full Rehab	1–3 years	Water Systems, Energy	High
13	Lift Station #11 full rehab plus generator		Tornado, Dam Failure, Earthquake, Flood	Mayor*, Engineering, Public Works		BRIC, HMGP, FMA	$130,000 for Generator and Rehab	1–3 years	Water Systems, Energy	High
14	Initiate mutual aid agreements and working group with surrounding cities and others in the County to share resources during times of crisis.	Working group would meet quarterly to address items like resources, action plans, staff, and equipment available and share information about what each jurisdiction is implementing to prepare for disasters and mitigate risk. Opportunity to collaborate on combined efforts such as fuel reduction. Additional, problems like liquefaction due to earthquakes and problem soils would significantly	Tornado, Dam Failure, Earthquake, Flood, Problem Soils	Mayor*, Public Works, City Administrator, County Emergency Management		BRIC, HMGP, FMA	Minimal	1 year	Safety and Security	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		impact the predominantly flat Plain City. Widespread liquefaction including settling of structures and water systems could quickly overwhelm local capabilities. Building capacities, establishing partnerships, and studying at risk areas would help mitigate this kind of risk.								

Table 407: 2024 Mitigation Action Plan of the City of Pleasant View

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Decant Facility	Proper processing of stormwater systems through established facility	Problem Soils	City Administration*, Public Works,	North Ogden, UDOT, Other Municipalities	ARPA	$5M	1–3 years	Safety and security, health and medical, food, hydration and shelter, energy, communications	High
2	Build Skyline Drive	Ensure adequate egress for area residents by building roadway. Establish alternative transportation route in the event of natural disaster mitigating the risk of residents being trapped.	Tornado, Dam Failure, Earthquake, Flood, Landslide	City Administration*, Public Works,	North Ogden, UDOT, Other Municipalities	WACOG, developers for surrounding areas	$25M	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
3	Zone 1 Water Tank	Adequate access to culinary water	Drought	City Administration*, Public Works, Engineer, etc.	Developers	Bonds	$3–$4M	1–3 years	Safety and Security, Water Systems	High
4	CERT Training Upgrades	Modify the City's overall approach to CERT and adjust training approaches (in coordination with Weber County). Pursue opportunities to engage CERT teams on mitigation including providing hazard mitigation training. Send CERT to County trainings on hazards and hazard mitigation.	Drought, Extreme Heat, Extreme Cold, Wildfire, Winter Storm, Flood	City Administration*, Emergency Management Agencies		BRIC, HMGP, HMGP-PF, FMA	Minimal	1–3 years	Safety and Security	Medium
5	Emergency Preparedness Planning Database	Create a database and collaboration of local businesses, organizations, and CERT to coordinate efforts, trainings and overall emergency preparedness planning	Extreme Heat, Extreme Cold, Landslide, Wi, Wildfire, Winter Storm, Dam Failure and Flood	City Administration*, Emergency Management Agencies		BRIC, HMGP, HMGP-PF, FMA	Minimal	1–3 years	Safety and Security	Medium
6	Upgrade Emergency Ops Comms and Plans	Evaluate and consider updating emergency operations communications equipment and implementation plans	Extreme Heat, Extreme Cold, Landslide, Wildfire, Winter Storm, Dam Failure and Flood	City Administration*, Emergency Management Agencies		BRIC, HMGP, HMGP-PF, FMA	Minimal	1–3 years	Safety and Security, Communications	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
7	Emergency Communications Strategic Plan	Improve communications, mitigate the impacts of and be prepared for emergency situations and hazards	Extreme Heat, Extreme Cold, Landslide, Wildfire, Winter Storm, Dam Failure and Flood	City Administration*, Emergency Management Agencies		BRIC, HMGP, HMGP-PF, FMA	Minimal	1–3 years	Safety and Security, Communications	Medium
8	Evaluate and actively address cyber-security challenges	Cyber attacks can increase in the wake of a disasters. Disasters like earthquakes and flooding can damage equipment and disrupt work, leaving security systems vulnerable during times of crisis. Proactively embracing cyber security mitigation measures such as early detection systems, back-ups, system redundancies, and employee training can help mitigate this risk.	Dam Failure, Earthquake, Flood	City Administration*, Emergency Management Agencies		BRIC, HMGP, FMA	Minimal	1 year	Safety and Security	Medium
9	Retrofit Public Works Department Shop Building	Seismic retrofit and repair core structural issues. Save lives and protect public infrastructure.	Earthquake	City Administration*, Public Works, Engineer, etc.		BRIC, HMGP	$40,000–50,000	3–5 years	Safety and Security	Medium
10	Implement Detention Basin Projects to Reduce Flood Risk	Replace box and gate infrastructure at Alder Creek detention basin; Dredge and de-silt Barker retention basin; Upgrade 17 detention basins; Remove	Flood	City Administration*, Public Works, Engineer, etc.		BRIC, HMGP, FMA	$972,000	1–3 years	Safety and Security	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		all canal stormwater collection and channel to detention basins								
11	Improve Detention Basin Water Supply Infrastructure to Reduce Wildfire Risk	Replace box and gate infrastructure at Alder Creek detention basin; Dredge and de-silt Barker retention basin; Upgrade 17 detention basins; Remove all canal stormwater collection and channel to detention basins	Wildfire	City Administration*, Public Works, Engineer, etc.	BRIC, HMGP, HMGP-PF	General fund	$972,000	1 year	Safety and Security	Medium
12	Conduct Fuels Reduction Projects	Work with Fire Districts and CERT to remove wildfire fuels and create systems to prevent spread of wildfire	Wildland Fire	City Administration*, Public Works, CERT, local fire districts etc.		BRIC, HMGP, HMGP-PF,	Minimal	1 year	Safety and Security	Medium
13	Plan for Winter Weather	Evaluate winter weather hazards and create coordinated planning to continually address preparedness	Winter Storm	City Administration*, Emergency Management, Public Works, etc.		BRIC, HMGP	Minimal	1 year	Safety and Security	Medium
14	Plan for Drought Including Water Conservation Planning	Create planning that addresses drought-related conditions, provides for natural cooling enhancements, and promotes water conservation and prudent water use	Drought	City Administration*, Emergency Management, Public Works, etc.		BRIC, HMGP	Minimal	1 year	Safety and Security	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
15	Purchase property to expand source	Purchase property to expand source: Little Missouri Spring and Water Reservoir	Drought	City Administration*, "Public Works,"		BRIC, HMGP	$500,000	1 year	Water Systems	Medium
16	Installation of Lightening Protection	Protection for all tanks and wells	Drought, Thunderstorms	City Administration*, "Public Works"		BRIC, HMGP	$70,000	1 year	Water Systems	High
17	Replacement/Infrastructure	Replace box and gate infrastructure at the Alder Creek Detention Basin	Problem Soils and Dam Failure	City Administration*, "Public Works"		BRIC, HMGP, FMA	$30,000	1 year	Water Systems	Medium
18	Upgrades to Infrastructure	Upgrades to 17 Detention Basins throughout the City	Problem Soils and Dam Failure	Public Works		BRIC, HMGP, FMA	$110,000	2026	Water Systems	Medium
19	Remove of Canal Infrastructure	All canal stormwater collection and channel to detention basins.	Problem Soils and Dam Failure	Public Works		BRIC, HMGP, FMA	$300,000	3–5 years	Water Systems	Low
20	Fuel Removal/Create fire breaks.	Work in tandem with Northview Fire District and homeowners to remove fuels and create fire breaks.	Drought; Invasive Species	"City Administration*;" Fire District		BRIC, HMGP	Minimal	2025	Safety and Security	Medium
21	Create a public awareness campaign	Create a public service campaign to inform residents about fuels reduction, fire breaks, and other mitigation tactics.	Drought, Wildfire	"City Administration*; Fire District		BRIC, HMGP	Minimal	1 year	Safety and Security	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
22	Conduct a sensitive land study.	A sensitive land study identified areas of land that are vulnerable due to characteristics such as topography, soil types, vegetation, water resources, flooding, steep slopes, erosion, high wind. Understanding soil and water conditions, as well as areas that can provide natural protection or that are associated with higher risk like steep slopes, can help identify areas which require additional mitigation activities such as nature-based solutions, land-use regulations, or other resiliency measures.	Drought, Flood, Problem Soils, Thunderstorm, Avalanche	City Administration		BRIC, HMGP	$40,000	1 year	Safety and Security	Medium
23	Complete and implement an excavation ordinance.		Avalanche, Dam Failure, Drought, Earthquake, Extreme Heat, Extreme Cold, Flood, Invasive Species, Landslide, Problem Soils, Thunderstorm, Tornado, Wildfire, Winter Storm	"City Administration*;" Fire District		BRIC, HMGP, HMGP-PF, FMA	Minimal	1 year	Safety and Security	Medium
24	Conduct a study to determine problem areas.	Pursue opportunities to conduct vulnerability assessments such as by	Avalanche, Dam Failure, Drought, Earthquake, Extreme Heat, Extreme	City Administration		BRIC, HMGP, HMGP-PF, FMA	Minimal	1 year	Safety and Security	Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		identifying and scoping projects for specific structures, populations, and neighborhoods. Identify and track alternative mitigation measures identified by studies including any specific public outreach recommendations or structural retrofits.	Cold, Flood, Invasive Species, Landslide, Problem Soils, Thunderstorm, Tornado, Wildfire, Winter Storm							
25	Create Vulnerable Populations List	The city will identify vulnerable populations, such as people with access and functional needs. Understanding where vulnerable populations are located can help support multiple phases of emergency management, including mitigation. Identifying at-risk members of the community can help prioritize projects and engage them directly in educational public outreach efforts.	Avalanche, Dam Failure, Earthquake, Extreme Heat, Extreme Cold, Flood, Landslide, Thunderstorm, Tornado, Wildfire, Winter Storm	City Administrator*; CERT Director	Weber County; Weber-Morgan Health Department	Staff time	Minimal	1-5 years	Safety and Security	Medium
26	Conduct Education and Awareness Program	The city can conduct additional public outreach to educate the public on how to reduce their risks. The city can update the website to include additional	Avalanche, Dam Failure, Earthquake, Extreme Heat, Extreme Cold, Flood, Landslide, Thunderstorm, Tornado, Wildfire, Winter Storm	City Administrator*, CERT Director	Weber County	Staff time	Minimal	1-5 years		High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		hazard mitigation specific information, incorporate mitigation into the community newsletter, engage the CERT team to spread notices via direct contact with the public, and share these updates via social media. Public outreach mitigation information includes: › Defensible space and home hardening (Wildfire) › Home weatherization (Extreme Cold, Extreme Heat, Winter Storms) › Tree trimming (Extreme Cold, Winter Storms, Tornado) › Non-structural retrofits (Earthquake)								

Table 408: 2024 Mitigation Action Plan of the City of Riverdale

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Familiarize staff with WebEOC	The hazards would include response to an earthquake, chemical release on rails or freeways, plane crash incidents, windstorm, tornado, winter storms	Thunderstorm, Wildfire, Winter Storm, Problem Soils, Tornado, Dam Failure, Flood, Earthquake	Riverdale City Fire Chief*/ Emergency Manager		BRIC, HMGP, HMGP-PF, FMA	None	1 year	Safety and Security	High
2	Reduce flood risk in River Glen neighborhood – Parker Trail Improvement	Raise the River Trail from about 3880 S. 575 W. to the Parker Trailhead to prevent early flooding in the River Glen neighborhood and the backflow of river water into the storm drain system. The improvements would include increasing the riverbank height and replacing the existing trail in the selected area	Dam Failure, Flood, Thunderstorms	Public Works Director		BRIC, HMGP, FMA	$500,000	1 year	Safety and Security	Low
3	Reduce flood risk in River Glen neighborhood	Trail way construction of boardwalk to allow overbank flows and build offset levee protection for City subdivisions along the Weber River.	Dam Failure, Flood, Thunderstorms	Public Works Director*		FEMA PDM, CDBG-NDRC, BRIC, HMGP, FMA	$300,000	1 year	Safety and Security	Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
4	Evaluate effectiveness of newly implemented drought ordinances (such as... city codes, enforcement, and water use)		Drought	Public Works Director		FEMA PDM, CDBG-NDRC, BRIC, HMGP	$300,000	1 year	Safety and Security	Low
5	Repair and prevent riverbank erosion that would damage trails at several locations	Riverdale's geography along the river puts it at a low point relative to the surrounding cities. Slopes bound Riverdale on the east, west, and south. This year, there has been erosion along riverbanks throughout the city. City must support the sides of the rivers for the public's safety and prevent further erosion that would damage trails.	Landslides, Flood, Problem Soils, Thunderstorms	Public Works Director		BRIC, HMGP, FMA	$100,000	1 year	Safety and Security	Low
6	Map and assess vulnerability to landslides to improve data and predict future threats	Mapping and understanding the Riverdale City bench. A landslide has occurred in the area to be evaluated. This will help determine the extent of further threats to infrastructure and residential structures.	Landslides	Public Works Director		BRIC, HMGP	$25,000	1 year	Safety and Security	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
7	Extreme Heat/Extreme Cold Public Education and Public Awareness Campaign	Increase awareness of extreme temperature risks and safety to the public and have an adequate response and location for people to get out of the heat. The impacts of extreme temperatures on public health can be lessened if citizens know how to prepare and protect themselves. Ideas for increasing awareness include: 1. Educating citizens regarding the dangers of extreme heat and cold and the steps they can take to protect themselves when extreme temperatures occur. 2. Develop a location where the special needs population can go for shelter and relief from extreme heat.	Extreme Heat, Extreme Cold, Winter Storms	Riverdale City Fire Chief*/ Emergency Manager		BRIC, HMGP	$50,000	1 year	Safety and Security	Low
8	Wildfire Public Education Campaign	The city has a small area of wildland interface. Residents there should be informed as to actions they could take to prevent their	Wildfire, Invasive Species	Riverdale City Fire Department		BRIC, HMGP, HMGP-PF	$10K	1 year	Safety and Security	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		property from being affected by wildfire.								
9	EOC Structural Improvements to IT Systems	City EOC is currently not functional. Phone lines need to be updated, including new phones and computer cabling	Thunderstorm, Wildfire, Winter Storm, Tornado, Dam Failure, Flood, Earthquake	IT Management		BRIC, HMGP, HMGP-PF, FMA	$10k	1 year	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	Medium
10	EOC Structural Improvements to Operations	Study needs for sustaining long-term EOC operations. Retrofit building to make it more resilient to the hazards addressed such as through weatherization, wind-resistant building materials, HVAC upgrades, defensible space, flood mitigation, non-seismic and seismic retrofits as needed) which will make the EOC more	Thunderstorm, Wildfire, Winter Storm, Tornado, Dam Failure, Flood, Earthquake	EOC Director		BRIC, HMGP, HMGP-PF, FMA	$1000	1 year	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High

*Note: CDBG = Community Development Block Grant

Table 409: 2024 Mitigation Action Plan of the City of Roy

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Structural Vulnerability Assessment	Develop an earthquake vulnerability study for critical facilities	Earthquake, Problem Soils	City Administration*, Public Works Director		Earthquake program grant, BRIC, HMGP	$50,000	1 year	Safety and Security	High
2	Replace undersized storm drains in 4800 South	Upgrade the existing undersized pipe, add catch basins	Flood, Thunderstorms	Public Works Director		BRIC, HMGP, FMA	$750,000	1 year	Drainage, Transportation	High
3	Increase snowplowing capacity	Add an equipped snowplow to the city fleet	Winter Storm	Public Works Director		BRIC, HMGP, FMA	$250,000	1 year	Safety and Security, Transportation	High
4	Winter Storm pretreatment system	Add a salt-brine pretreatment system for winter maintenance of roads	Winter Storm	Public Works Director		BRIC, HMGP, FMA	$150,000	3–5 years	Safety and Security, Transportation	Medium
5	Emergency Facilities Improvements Study	Complete a feasibility study to evaluate retrofitting or building a new fire station and municipal center.	Earthquake	City Administration*, Fire Chief		BRIC, HMGP	$40,000	3–5 years	Safety and Security	Medium
6	2 MG Water Reservoir	Construct an additional culinary water storage reservoir near the existing 4000 South Well	Drought, Earthquake	Public Works Director		BRIC, HMGP	$3 Million	3–5 years	Water System	Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
7	Replace leaky culinary waterlines	Replace leak-prone ductile iron pipes in areas impacted by corrosive soils. Reduce the impact of drought on water supply	Drought, Problem Soils	Public Works Director		BRIC, HMGP	$500,000	3–5 years	Water System	Medium
8	Assessment of Howard Slough corridor	Determine if invasive species (phragmites) is impacting stormwater capacity of the Howard Slough and determine methods for eliminating	Invasive Species, Flood, Thunderstorm	Public Works Director		BRIC, HMGP, FMA	$5,000	1 year	Drainage System	Medium
9	Develop and implement emergency operations plans similar to other school districts.	Update EOP.	Earthquake, Thunderstorm, Flood, Drought	City Administration		EMGP, Staff Time	Unknown	1-5 years		High
10	Strengthen critical infrastructure—within the city, including water mains and HVAC systems—to improve resilience against disasters and mitigate vulnerabilities. Identify and concentrate assets in	Conduct comprehensive evaluations of water distribution systems and HVAC units to identify weak points and prioritize upgrades. Improve ventilation efficiency, upgrade outdated systems, and integrate backup power solutions for emergency operations.	Winter Storm	Public Works		HMGP	Unknown	1-5 Years	Water Systems; Food, Water, Shelter	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
	potentially vulnerable areas.									
11	Strengthen critical infrastructure within the city, HVAC systems, to improve resilience against disasters and mitigate vulnerabilities. Identify and concentrate assets in potentially vulnerable areas.	Improve infrastructure and identify high-risk areas for power outages to enhance HVAC system resilience and mitigate vulnerabilities. Conduct comprehensive inspections of HVAC systems across municipal buildings, hospitals, emergency shelters, and critical facilities. Propose regulatory updates to strengthen building codes and require. Provide educational materials and training for residents on HVAC preparedness and energy conservation during emergency events. disaster-resilient HVAC installations.	Extreme Heat	Public Works	N/A	HMGP, Private	Unknown	1-5 Years	Food, Water, Shelter	Low

Table 410: 2024 Mitigation Action Plan of the City of South Ogden

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Seismic retrofitting of infrastructure	Hire structural engineers to assess the seismic vulnerability of key infrastructure	Earthquake	Public Works Director		BRIC	Unknown	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High
2	Seismic retrofitting of infrastructure	Retrofit public buildings to meet seismic safety standards	Earthquake	Public Works Director		BRIC	Unknown	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High
3	Emergency drill organization	Conduct regular earthquake drills and training for emergency responders	Earthquake	Emergency Manager		BRIC	Unknown	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High
4	Cooling center development	Establish cooling centers in easily accessible locations with adequate air conditioning	Extreme Heat	Emergency Manager		BRIC,	Unknown	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
5	Urban greening initiative	Plant trees and install shade structures in public areas to reduce heat island effect	Extreme Heat	Public Works Director		BRIC	Unknown	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	Medium
6	Warming center establishment	Identify suitable locations for warming centers and equip them with heating facilities	Extreme Cold, Winter Storm	Emergency Manager		BRIC	Unknown	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	Low
7	Insulation upgrade program	Upgrade insulation and weatherization in public buildings to improve energy efficiency	Extreme Cold, Winter Storm	Public Works Director		BRIC	Unknown	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	Low
8	Flood control infrastructure upgrades	Conduct regular inspections and repairs or upgrades of flood control infrastructure	Flood	Public Works Director		BRIC, HMGP, FMA	Unknown	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
9	Slope stabilization projects	Implement slope stabilization measures such as retaining walls and erosion control. Anticipated projects include landslide-prone areas in South Ogden such as: • The water storage tanks and water holding basin located in the eastern part of the city; • The hillsides surrounding the Ogden Athletic Club; • The banks of Burch Creek, which runs east to west through the city. These areas have experienced landslides historically, with the Burch Creek banks showing recent signs of sliding. Mitigation in these zones is necessary due to existing infrastructure, risk to private property, and potential downstream impacts during storm events. Future actions may include slope stabilization, erosion	Landslide	Public Works Director		BRIC, HMGP	Unknown	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		control, vegetation management, and monitoring for movement.								
10	Early warning system installation	Install early warning systems and evacuation routes in high-risk areas	Landslide	Emergency Manager*, Public Works Director		BRIC, HMGP	Unknown	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High
11	Wildfire mitigation	Clear vegetation and create defensible space around structures	Wildfire	Fire Chief* and Emergency Manager		BRIC, HMGP, HMGP-PF	Unknown	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High
12	Winter resilience	Maintain and upgrade snow removal equipment and de-icing materials	Winter Storm	Public Works		BRIC, HMGP, FMA	$200,000	1–3 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	Medium
13	Winter resilience	Establish emergency heating centers for residents without adequate heat	Winter Storm	Emergency Manager		BRIC, HMGP, FMA	$100,000	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation,	Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
									communications, hazardous materials.	
14	Drought Awareness Campaign	Develop and implement a public education campaign on drought mitigation practices like water conservation and drought preparedness	Drought	Emergency Manager		BRIC, HMGP	$50,000	1 year	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	Low
15	Soil Health Improvement Program	Promote practices such as crop rotation and cover cropping to improve soil health and reduce erosion	Problem Soils, Invasive Species	Public Works Director		BRIC, HMGP	$30,000	1–3 years	Safety and security, health and medical. Food, hydration and shelter, energy, communication, transportation	Medium
16	Tornado Shelter Construction	Identify and construct community tornado shelters in high-risk areas	Tornado, Thunderstorms	Emergency Manager		BRIC, HMGP	$300,000	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials	Medium
17	Emergency Response Training	Conduct training sessions for first responders on how to respond to tornado and severe thunderstorm events	Tornado, Thunderstorms	Emergency Manager		BRIC, HMGP	$25,000	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials	Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
18	Provide secondary power for water system by installing standby generators for culinary and secondary pumping/ lift stations	Power outages after an earthquake can become a health and environmental hazard if pumping is required to move water.	Earthquake	Engineer*/Public Works		HMGP	TBD	3-5 years	Water Systems, Energy	High

Table 411: 2024 Mitigation Action Plan of the City of Uintah

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Improvement to storm drain system	Our city does not have curbs and gutters, and so we have swells in front of people's houses to collect water. Unfortunately, we have homeowners that fill in those swells. We are going to educate homeowners on the importance of swells and encourage those who have filled in their swells with hard surfaces, that they need to take them out so that the water can go into the aquifer and not into the river.	Flood, Dam Failure, Thunderstorm, Winter Storm	Public Works Director* and Engineer		Utah Division of Water Resources	TBD	1–3 years	Water Systems	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
2	Address retention dam vulnerabilities	Work with the County to help reduce retention dam vulnerabilities by participating in joint inspections to identify structural weaknesses. Improve and publicize flood warning systems, evacuation routes, and communication plans for neighborhoods that would be affected by flooding.	Dam Failure, Flood	Public Works* and Engineer working with the County,	Retention dam owners, Weber Basin Water District	HHPD, BRIC, HMGP, FMA	Unknown	1 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	Medium
3	Monitor Water Supply – Reduce leaks and water loss	Uintah adopted a water wise landscape plan to mitigate future drought. We encourage our residents to zero scape projects throughout the city to use less water, and we are going to add in some zero scaping to reduce some of the city's water use as well. We also have two 500,000 gallon water tanks. We routinely monitor PRV stations and pipelines for pressure changes and leaks.	Drought	Uintah Public Works Department		BRIC, HMGP	Minimal	3–5 years	Food, Water, Shelter	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
4	Adopt and enforce building code to reduce earthquake damage and risk		Earthquake	Building Inspector		BRIC, HMGP	Minimal	1 year	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	Medium
5	Create a plan to implement reinforcement where landslides are possible		Landslide	Public Works, Engineer		BRIC, HMGP	Minimal	1 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	Low
6	Implement a fuels management system citywide to help focus on the areas of concern		Wildfire	City Administration* and Public Works		BRIC, HMGP, HMGP-PF,	Minimal	1 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High
7	For the portion of the railroad tracks that the City can maintain, cut the grass to help mitigate fire risk		Wildfire	Public Works	Railroad	BRIC, HMGP, HMGP-PF,	Minimal	1–3 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
8	Extreme Heat and Extreme Cold Public Awareness Programs	Increase awareness of extreme temperature risks and safety to the public and have an adequate response and location for people to get out of the heat. The impacts of extreme temperatures on public health can be lessened if citizens know how to prepare and protect themselves. We would educate citizens in our monthly newsletter on the dangers of extreme heat and cold and the steps they can take to protect themselves when extreme temperatures occur. We would also develop a location where the special needs population can go for shelter and relief from extreme heat.	Extreme Heat and Extreme Cold	Emergency Management Agency	Local Health Department	HMGP	$5,000	1 year	Food, Hydration, Shelter	Low

Table 412: 2024 Mitigation Action Plan of the City of Washington Terrace

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Culinary Water Line Replacement	Replace aging culinary water lines to improve resilience against multiple hazards in Washington Terrace. Use freeze-resistant materials for extreme cold, thermally stable materials for heat, PVC used for landslides and problem soils, elevated access points for flood protection, anchored and debris-resistant designs for Wildfire resilience by enhancing fire flow capacity.	Extreme Heat, Extreme Cold, Landslide, Thunderstorm, Wildfire, Winter Storm, Drought, Flood, Earthquake, Tornado, Problem Soils	Public Works Director		HMGP, BRIC, PA Mitigation, CDBG* funding	$1,819,549	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High
2	Pressure Regulating Valve (PRV) Station and Supply Line Redundancy	Install a new 10" PRV station and 12" supply line to support high demands on water flow when needed in Wildfire demands	Wildfire	Public Works Director		HMGP, BRIC, PA Mitigation, FMA, CDBG funding	$35,685	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High
3	Looped 10” Water Main for System Redundancy	Construct looped water mains to improve distribution redundancy. This ensures uninterrupted service during earthquakes, reduces	Extreme Heat, Extreme Cold, Landslide, Wildfire, Winter Storm, Drought, Flood, Earthquake, Problem Soils	Public Works Director		HMGP, BRIC, PA Mitigation, FMA, CDBG funding	$257,400	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation,	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		stagnation and leakage during droughts, and resists breakage in problem soils or landslides. Enhanced system pressure also improves fire response during wildfires.							communications, hazardous materials.	
4	Equip water meters with reading system	Water Management and Efficiency	Drought, Extreme Heat	Public Works Director* and Engineer		HMGP, BRIC, PA Mitigation, CDBG funding	$257,400	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High
5	5250 South Pipe Upsizing	Replace old 6" line with 8" PVC pipe to increase capacity and flow during emergencies. Improves service reliability during drought, enhances flexibility for shifting soils, and increases tolerance during seismic activity.	Drought, Earthquake, Problem Soils	Public Works Director* and Engineer		HMGP, BRIC, PA Mitigation, CDBG funding	$312,650	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	Low
6	5000 South Transite Pipe Replacement	Upgrade 6" transite pipe to 10" PVC to address vulnerability to seismic activity and unstable soils. Enhances capacity during drought and improves flow reliability.	Drought, Earthquake, Problem Soils	Public Works Director* and Engineer		HMGP, BRIC, PA Mitigation, CDBG funding	$387,140	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
7	4900–4800 South Pipe Upgrade	Replace aging 6" pipe with 10" PVC for improved capacity and resilience. Designed to reduce failures caused by earthquakes, unstable soils, and long-term drought effects.	Drought, Earthquake, Problem Soils	Public Works Director* and Engineer		BRIC, HMGP, PA Mitigation, CDBG funding	$198,380	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High
8	5150 S 8" line replacement (between 150 E/300 E)	Infrastructure Capacity, Reliability, and Safety	Drought, Earthquake, Problem Soils	Public Works Director and Engineer		HMGP, BRIC, PA Mitigation, CDBG funding	$105,625	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	Low
9	Replace 10" ductal w 10" PVC in 5200 South	Infrastructure Capacity, Reliability, and Safety	Drought, Earthquake, Problem Soils	Public Works Director* and Engineer		HMGP, BRIC, PA Mitigation, CDBG funding	$278,980	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High
10	Replace water valves and service laterals (south of Jr High School)	Infrastructure Reliability, Maintenance Efficiency, and Public Safety	Thunderstorm, Drought	Public Works Director* and Engineer		BRIC, HMGP, PA Mitigation, CDBG funding	$102,700	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
11	Regional Detention Basin at TH Bell	Construct a regional detention basin to mitigate floodwaters from storms and reduce flooding near TH Bell. Enhances stormwater drainage and reduces soil liquefaction risk during earthquakes.	Flood, Thunderstorm, Earthquake	Public Works Director**, Engineer, City Administration		BRIC, HMGP, PA Mitigation, CDBG funding	$2,365,300	3–5 years	Water Systems	Medium
12	Storm drain relief (4850 S & 300 W) (RR-4F)*	Flooding; Stormwater Management and Flood Mitigation	Flood, Thunderstorm, Earthquake	Public Works Director, Engineer, City Administration		BRIC, HMGP, PA Mitigation, FMA, CDBG funding	$76,440	3–5 years	Water Systems	High
13	Intersection drain improvements (RR-24)*	Flooding Stormwater Management and Flood Mitigation	Flood, Thunderstorm, Earthquake	Public Works Director*, Engineer, City Administration		BRIC, HMGP, PA Mitigation, FMA, CDBG funding	$174,915	3–5 years	Water Systems	High
14	Upgrade storm drain, sanitary sewer, and culinary water distribution	Reconstruct 300 West (CW-14, CW-30, SD-16, SD-26 and SS-9) Comprehensive Infrastructure Improvement	Flood, Thunderstorm, Earthquake	Public Works Director*, Engineer, City Administration		BRIC, FMA, HMGP, PA Mitigation, CDBG funding	$3,253,000	3–5 years	Safety and Security	High
15	Recon-struct 5200 South, between 150 East and 500 West SD replace 21" with 24"	Stormwater Management and Flood Mitigation	Flood, Thunderstorm, Earthquake	Public Works Director*, Engineer, City Administration		BRIC, FMA, HMGP, PA Mitigation, CDBG funding	$3,253,000	3–5 years	Safety and Security	High
16	Recon-struct 300 East, between 5250 South	Stormwater Management and Flood Mitigation	Flood, Thunderstorm, Earthquake	Public Works Director*, Engineer, City Administration		BRIC, FMA, HMGP, PA Mitigation,	$322,036	3–5 years	Safety and Security	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
	and Ridgeline (CW-27 and SD-21)					CDBG funding				
17	300 West Detention Enhancement	Expand detention capacity. Enhances water delivery reliability and improves ability to manage storm surges from floods and thunderstorms.	Flood, Thunderstorm	Public Works Director*, Engineer, City Administration		HMGP, FMA, BRIC, PA Mitigation, CDBG funding	$83,525	1 year	Water Systems	Low
18	4450–4475 South Backyard Wastewater Upgrade	Upgrade backyard sewer lines to prevent backflow and infiltration during flooding, stormwater runoff, or seismic movement. Focuses on areas with aging private lateral connections.	Flood, Thunderstorm, Earthquake	Public Works Director*, Engineer, City Administration		HMGP, FMA, BRIC, PA Mitigation, CDBG funding	$156,734	1–3 years	Water Systems	High
19	4750 South Backyard Sewer Management	Rebuild sewer lines in backyard easements to improve capacity and eliminate overflow risk during flooding or seismic events. Targets storm-prone sections between 300 and 370 West.	Flood, Thunderstorm, Earthquake	Public Works Director*, Engineer, City Administration		BRIC, FMA, HMGP, PA Mitigation, CDBG funding	$78,078	1–3 years	Water Systems	High
20	Sewer Replacement – 200–275 West	Replace aging sewer infrastructure to handle storm inflow and protect against earthquake damage. Reduces flood-	Flood, Thunderstorm, Earthquake	Public Works Director*, Engineer, City Administration		BRIC, FMA, HMGP, PA Mitigation, CDBG funding	$184,541	3–5 years	Water Systems	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		related overflows in residential zones.								
21	Water System Standby Generator	Install emergency power generation for the city's water system. Ensures uninterrupted service during power outages caused by earthquakes or thunderstorms.	Earthquake	Public Works Director*, Engineer, City Administration		BRIC, FMA, CDBG	$750,000	3–5 years	Water System	Medium
22	Drought-Resistant Native Plant Landscaping	Implement native plant landscaping at city facilities and encourage adoption citywide. Reduces water use and improves fire buffer resilience.	Drought, Wildfire	Public Works Director*, Engineer, City Administration	Local Nurseries	BRIC, HMGP, HMGP-PF, CDBG,	$50,000.00	3–5 years	Natural and Cultural Resources	Medium
23	Flood Risk Public Awareness Campaign	Conduct education and outreach about flood risk and mitigation strategies. Increases community readiness for thunderstorms and flooding.	Flood, Thunderstorm	Emergency Manager	Media Outlets, Community Groups	BRIC, HMGP, FMA CDBG,	$10,000.00	3–5 years	Safety and Security	High
24	Emergency Fair and Community Outreach	The City of Washington Terrace will launch a community outreach program to help residents better understand local hazards like earthquakes, floods, extreme	Extreme Heat, Extreme Cold, Landslide, Thunderstorm, Wildfire, Winter Storms, Drought, Flood, Earthquake, Tornado, Problem Soils	Emergency Manager		BRIC, FMA, CDBG, Staff Time	$10,000.00	1-5 years	Safety and Security	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		weather, and wildfires and what they can do to reduce their impacts. The program will focus on teaching people how to prepare their homes to mitigate their own risk, build emergency kits, sign up for alerts, and respond safely in an emergency. We will use city newsletters, social media, school visits, neighborhood meetings, and events to share this important information. This helps keep our community safe and ready before disaster strikes.								
25	Washington Blvd 4400 S to 5000 S Xeriscape	Washington Terrace City proposes a xeriscaping project along Washington Boulevard from 4400 South to 5000 South using drought-resistant native vegetation and fire-resistant landscaping techniques. This project will significantly reduce non-essential irrigation demands during drought conditions and will serve as a wildfire mitigation	Wildfire, Drought	Public Works Director, Engineer, City Administration, Emergency Manager	Local Nurseries	BRIC, FMA,CDBG	$500,000.00	1-5 years		High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		buffer by replacing flammable vegetation with low-fuel, defensible materials such as rock beds, native shrubs, and fire-resistant ground cover. The project will enhance the city's water conservation strategy, reduce maintenance costs, and help prevent the rapid spread of fire in the event of a roadside ignition.								

*Note: CDBG = Community Development Block Grant

Table 413: 2024 Mitigation Action Plan of the City of West Haven

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Increase capacity by replacing, upsizing, and dredging culverts and pipes	Lower flood potential by correcting flood hazards, including the following:	Flood, Winter Storm	City Emergency Manager*, Public Works, Engineer		WACOG*, BRIC, HMGP, FMA		3–5 years	Water Systems	Medium
1.A		4450 W & 3800 S Culvert	Flood	City Emergency Manager*, Public Works, Engineer		WACOG*, BRIC, HMGP, FMA	$100,000	1–3 years	Water Systems	Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1. B		Howard Slough – Increase capacity and upsize pipe on 3600 S from Midland to 3450 S	Flood	City Emergency Manager*, Public Works, Engineer		WACOG*, BRIC, HMGP, FMA	$900,000	3–5 years	Water Systems	Medium
2	Work with canal companies to ensure canals are structurally up to date	Hooper Canal (4800 S to 3800 S) – above grade canal – break risk	Flood, Dam Failure	City Emergency Manager*, Public Works, Engineer		BRIC, HMGP, FMA	TBD	1–3 years	Water Systems	Medium
3	Acquire emergency power equipment – maintenance shop generator		Extreme Heat, Extreme Cold, Thunderstorm, Wildfire, Winter Storm, Drought, Flood, Earthquake, Tornado	City Emergency Manager*, Public Works, Engineer		HMGP, BRIC, HMGP-PF, FMA	$80,000	1–3 years	Energy	Medium
4	Acquire and train personnel and volunteers	Train the following personnel: Mayor; City Council (5); City Employees (13); City Contract Personnel (1); HAM Radio Operators (43 within city boundaries, 7 active ARES); CERT Members (105)	Earthquake,	City Emergency Manager*, Public Works, Engineer		BRIC, HMGP	$5,000	3–5 years	Safety and Security	Medium
5	Educate the public on how to reduce their hazard risk	Our plan will include social media, education information with property	Dam Failure, Drought, Earthquake, Extreme Cold, Extreme Heat,	Emergency Manager	PIO, County Emergency Services	City budget, BRIC, HMGP, HMGP-PF, FMA	Staff time – annual cost	3–5 years	Safety and security, food, hydration, water, health and	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		utility billing and educational materials distributed through rental agencies to tenant, emergency management celebration booth.	Invasive Species, Problem Soils, Thunderstorms, Tornado, Wildfire, Winter Storms				approx. $5,000		medical, energy, transportation, communications, hazardous materials.	

Table 414: 2024 Mitigation Action Plan of the Hooper Water Improvement District

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Water Tank Seismic Mitigation	2 2MG water tanks & a 750k tank Above ground metal tanks must be reinforced to withstand shaking caused by an earthquake.	Earthquake	General Manager	Gardner Engineering, others	BRIC, HMGP, bond	Unknown	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	Low

Table 415: 2024 Mitigation Action Plan of the Pineview Water System

	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Install water meters on all secondary water connections	To monitor water use, inform end users of available water, and	Drought	Pineview Water Systems General		BIL, EPA funding, BRIC, HMGP	$80M	3–5 years	Water Systems	High

	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		discontinue water delivery once allocation is exceeded		Manager*, Engineering Superintendent						
2	Create an end user or customer portal	To inform customers of personal water usage and remaining available water	Drought	Pineview Water Systems General Manager*, Engineering Superintendent		BRIC, HMGP	Cost is in the cost of the meter	3–5 years	Water Systems	High
3	Create a drought response plan	To identify course of action and water use priority	Drought	Pineview Water Systems General Manager*, Engineering Superintendent		BRIC, HMGP	$30,000	1 year	Water Systems	Medium
4	Identify and replace water pipes and other infrastructure that is exfiltrating water		Drought	Pineview Water Systems General Manager*, Engineering Superintendent		BRIC, HMGP, EPA, FEMA HMA grants	$700M	3–5 years	Water Systems	Low
5	Conduct a vulnerability study	To identify areas with high vulnerability and potential infrastructure improvements	Earthquake	Pineview Water Systems General Manager*, Engineering Superintendent		BRIC, HMGP	$150,000	3–5 years	Water Systems, Safety and Security	Medium
6	Implement infrastructure improvements identified by vulnerability study		Earthquake	Pineview Water Systems General Manager*, Engineering Superintendent		BRIC, HMGP	$100M	3–5 years	Safety and Security, Water Systems	Medium
7	Identify rock fall hazards in Ogden Canyon	Eliminate or reduce life-threatening or damage-creating rock fall events	Avalanche, Landslide, Problem Soils, Earthquake,	Pineview Water Systems General		BRIC, HMGP	$10M	3–5 years	Safety and Security	Low

	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
				Manager*, Engineering Superintendent						
8	Identify and replace all old and vulnerable waterlines		Problem Soils, Earthquake, Flood, Thunderstorms	Pineview Water Systems General Manager*, Engineering Superintendent		BRIC, HMGP, FMA	$700M	3–5 years	Water Systems	Medium
9	Natural Hazards Public Education and Awareness Program	Provide public awareness information on Water System website on how the public can reduce their risk to disasters including how to mitigate the impact of these hazards on their homes and water lines, what to do about leaks, and other pre-disaster mitigation activities. This information can be shared via multiple methods such as via website, social media, and posting flyers.	Avalanche, Landslide, Drought, Flood, Problem Soils, Earthquake, Dam Failure, Extreme Heat, Invasive Species, Tornado, Wildfire, Thunderstorms	Pineview Water Systems General Manager*,	Weber County Health Department, Weber County OEM	HMGP	$5,000	1 year	Water Systems	Low

Table 416: 2024 Mitigation Action Plan of Roy Water Conservancy District

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Install secondary water meters	Install secondary water meters to all connections to monitor water use for the end user and inform them of their water use	Drought	District General Manager*, Engineer		ARPA grant and State loan, BRIC, HMGP	$35,000,000	3–5 years	Water Systems	High
2	Development of Customer Portal		Drought	District General Manager*, Engineer		State grant and District budget, BRIC, HMGP	$75,000	1 year	Water Systems	High
3	Install drought tolerant landscape	Remove existing landscape on District property and replace with drought tolerant landscape	Drought	District General Manager*, Engineer		State grant and District budget, BRIC, HMGP	$7,000,000	3–5 years	Water Systems	Medium
4	Install automatic valve controls	Install automatic valve controls for existing large diameter valves located near a major roadway and the District's reservoir	Earthquake	District General Manager*, Engineer		BRIC, HMGP, and District budget	$150,000	1–3 years	Water Systems	Medium
5	Seismic study	Complete seismic study on existing buildings and infrastructure	Earthquake	District General Manager*, Engineer		BRIC, HMGP, and District budget	$500,000	1–3 years	Safety and Security	Medium
6	Joint Repair in Shotcoat Pipe		Earthquake	District General Manager, Engineer		BRIC, HMGP, and District budget	$7,000,000	3–5 years	Water Systems	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
7	Transmission Line Replacement	Replace Transmission Lines under freeway and frontage road	Earthquake	District General Manager*, Engineer		BRIC, HMGP, and District budget	$1,500,000	1–3 years	Water Systems	Medium
8	Waterline replacement	Waterline replacement in various locations throughout entire water distribution system	Earthquake, Drought, and Problem Soils	District General Manager*, Engineer		BRIC, HMGP, and District budget	$20,000,000	3–5 years	Water Systems	Medium
9	Service lateral replacement	Service lateral replacement in various locations throughout entire water distribution system	Earthquake, Drought, and Problem Soils	District General Manager*, Engineer		BRIC, HMGP, and District budget	$11,000,000	3–5 years	Water Systems	Medium
10	Reservoir removal and replacement	Remove and replace concrete reservoir sidewalls and floor. The original concrete is 48 years old and was not originally designed to address seismic issues In accordance with the seismic code for a structure of this kind. Since the concrete for the reservoir walls and flood are exposed the elements, it goes through extreme heat and cold based on the local weather conditions in the summer and winter which has resulted in some buckling issues	Dam Failure, Drought, Earthquake, Extreme Cold, and Extreme Heat	District General Manager*, Engineer		BRIC, HMGP, FMA, and District budget	$11,000,000	3–5 years	Water Systems	Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		which could cause a dam failure if not addressed. Removing and replacing the concrete reservoir sidewall and floors will help reduce the risk of dam failure and reduce the impacts of multiple hazards as addressed.								
11	Pump House Backup Generator	Backup generator for pump house	Earthquake and Drought	District General Manager*, Engineer		BRIC, HMGP, and District budget	$1,000,000	3–5 years	Water Systems, Energy	Low
12	Building Alternative power source	Backup generator or alternative power source (solar panels) for building	Earthquake and Drought	District General Manager*, Engineer		BRIC, HMGP, and District budget	$2,000,000	3–5 years	Water Systems, Energy	Low
13	Waterline joint restraints project	Add waterline joint restraints under waterway crossings in flood areas	Flood, Winter Storm, Extreme Cold	District General Manager*, Engineer		BRIC, HMGP, FMA, and District budget	$500,000	3–5 years	Water Systems	Low
14	Chemical injection system	Chemical injection system into waterlines for possible invasive species	Invasive Species	District General Manager*, Engineer		BRIC, HMGP, and District budget	$100,000	3–5 years	Water Systems	Low
15	Waterline Replacement	Replace waterlines with fused HDPE pipe in areas of potential landslide	Landslide	District General Manager*, Engineer		BRIC, HMGP, and District budget	$750,000	3–5 years	Water Systems	Low
16	Pump house protection system	Protect pump house, office, and shop electrical systems from lightning	Thunderstorm	District General Manager*, Engineer		BRIC, HMGP, and District budget	$100,000	3–5 years	Water Systems, Energy	Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		during thunderstorms. Measures which could be taken to protect the system include installing surge protectors, backup generators, and installation of lightning rods with appropriate grounding and/or installation of an emergency shutoff system that would isolate the electrical systems from the electrical grid in order to mitigate damages. For example, the pumps run off of three phase power and if one of the phases is lost, then there could be quite a bit of damage to the pumps by just running on the other two phases, so it would be good to shut off or disconnect the system from the power feed to avoid more damage.								
17	Tornado damage study	Complete study on existing buildings and infrastructure for potential damage due to tornados	Tornado	District General Manager*, Engineer		BRIC, HMGP, and District budget	$250,000	3–5 years	Safety and Security, Energy	Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
18	Winter Storm damage study	Complete study on existing buildings and infrastructure for potential damage due to winter storms	Winter Storm	District General Manager, Engineer		BRIC, HMGP and District budget	$250,000	3–5 years	Safety and Security, Energy	Low

Table 417: 2024 Mitigation Action Plan of the Taylor West Weber Water District

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Update Supervisory Control and Data Acquisition (SCADA) – Mitigate the time and impact to the district when a natural disaster occurs	SCADA can control pumps, wells, and tanks, and it provides security over the sites. It monitors water levels in aquifers and tanks and monitors flows and pressures in the system, which is vital when natural disasters occur. It can be operated in real time from remote locations. The District is upgrading this system to be prepared for disasters. By updating our SCADA system, we	Extreme Heat, Extreme Cold, Dam Failure, Thunderstorm, Wildfire, Winter Storm, Tornado, Drought, Flood, Earthquake, Problem Soils	District General Manager*, Engineer		Internal funding source/ in-house fund dedicated to capital improvements	$120,000	1 year	Safety and Security, Water Systems	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		can deal with situations when we are in a drought and with extreme heat weather conditions. We are also able to see aquifer elevations and deal with the drought. Mitigate is to make less severe, serious, or painful. Our SCADA system is a valuable resource that can lessen the effects of a drought or extreme temperatures. In the case of a wildfire our SCADA system will help mitigate the effects of the fire by keeping the storage tanks as full as possible.								
2	Conduct Mitigation Public Outreach and Awareness Activities	The District will share information on hazard risks and how to mitigate them. The District will update the website and Facebook page with public awareness information, as well as	Dam Failure, Drought, Earthquake, Extreme Heat, Extreme Cold, Flood, Problem Soils, Thunderstorms, Tornado, Wildfire, Winter Storms	Secretary	Weber County OES	District funding (staff time)	Staff Time	1-5 years		Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		send out fliers and newsletters with the bills. This way, the District will support increasing public awareness on disasters and what mitigation measures can address them, including to residents who are online and those that are not.								

Table 418: 2024 Mitigation Action Plan of the Weber–Morgan Health Department

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Medical Countermeasures Plan (MCM)	This plan describes MCM operations for the Weber-Morgan Health Department (WMHD) in Weber County and Morgan County only. The WMHD MCM program coordinates with the state MCM program, housed at the DHHS and the federal MCM program, overseen by the Office of the Assistant Secretary of Preparedness and Response	Dam Failure, Drought, Earthquake, Extreme Cold, Extreme Heat, Flood, Invasive Species, Landslide, Thunderstorm, Tornado, Wildfire, Winter Storm	All WMHD staff would take direction for the Health Officer* and Nursing Director* or ES Manager	All response partners in the jurisdiction, such as IHC, Mountain Star, DHHS, CDC	Centers for Disease Control and Prevention – Investigations and Technical Assistance Public Health Emergency Preparedness/Utah Department of Health and Human Services	Unknown	1 year	Health and Medical	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		(ASPR), in the Department of Health and Human Services (HHS).								
2	Point of Dispensing (POD)	PODs reduce the spread of diseases including in post-disaster environments by quickly providing the opportunity to vaccinate the public. POD planning is a supplement to the WMHD MCM Plan and serves as a concise resource for the POD Coordinator to aid in the process of POD implementation and operations, including recommended POD Coordinator training; POD Coordinator activation and briefing; POD site preparations and set-up; receiving/briefing staff and volunteers; and POD operations/demobilization. POD Coordinators will be required.	Dam Failure, Drought, Earthquake, Extreme Cold, Extreme Heat, Flood, Invasive Species, Landslide, Thunderstorm, Tornado, Wildfire, Winter Storm	All WMHD staff will take direction from the Health Officer*and Emergency Manager	All response partners within the jurisdiction, such as IHC, Mountain Star, Weber State University, Ogden Fire Dept.	Centers for Disease Control and Prevention – Investigations and Technical Assistance Public Health Emergency Preparedness/Utah Department of Health and Human Services	Unknown	1 year	Health and Medical	Medium
3	Improve epidemiological surveillance through the collaboration of onsite epidemiologists and	Mitigate impacts of disaster risks by ensuring emerging infectious diseases are reduced including addressing water quality post-event.	Dam Failure, Drought, Earthquake, Extreme Cold, Extreme Heat, Flood, Invasive Species, Landslide,	All WMHD staff would take direction from the Health Officer* and Nursing EP*I	All response partners within the jurisdiction	Centers for Disease Control and Prevention – Investigations and Technical Assistance Public	Unknown	1 year	Health and Medical	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
	informatics specialists, who will disseminate data and provide the WMHD with a better understanding of how to mitigate emerging infectious diseases.		Thunderstorm, Tornado, Wildfire, Winter Storm			Health Emergency Preparedness/Utah Department of Health and Human Services				
4	Update Medical and Response Staff Training	Update training for all WMHD employees, especially medical and response staff, to ensure proper investigations and surveillance is done.	Dam Failure, Drought, Earthquake, Extreme Cold, Extreme Heat, Flood, Invasive Species, Landslide, Thunderstorm, Tornado, Wildfire, Winter Storm	All WMHD would take direction for the Health Officer* and Nursing Division with Epi support	All response partners within the jurisdiction	Centers for Disease Control and Prevention – Investigations and Technical Assistance Public Health Emergency Preparedness/Utah Department of Health and Human Services	Unknown	1 year	Health and Medical	Medium
5	Produce educational public messaging and public health campaigns	To promote healthy living to fight illness through personal protective measures	Dam Failure, Drought, Earthquake, Extreme Cold, Extreme Heat, Flood, Invasive Species, Landslide, Thunderstorm, Tornado, Wildfire, Winter Storm	All WMHD will take direction from the Health Officer* - PIO and Community Health Directors	All response partners within the jurisdiction	Centers for Disease Control and Prevention – Investigations and Technical Assistance Public Health Emergency Preparedness/Utah Department of	Unknown	1–3 years	Health and Medical	Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
						Health and Human Services				
6	Continuity of Operations Plans (COOP)	The Weber-Morgan Health Department (WMHD) Continuity of Operations Plan (COOP) helps ensure the availability of essential services to the community during an emergency or threat. Historical and current events worldwide have demonstrated the need for a detailed COOP.	Dam Failure, Drought, Earthquake, Extreme Cold, Extreme Heat, Flood, Invasive Species, Landslide, Thunderstorm, Tornado, Wildfire, Winter Storm	All WMHD will take direction from the Health Officer* and Directors and Emergency Manager	All response partners within the jurisdiction	Centers for Disease Control and Prevention – Investigations and Technical Assistance Public Health Emergency Preparedness/Utah Department of Health and Human Services	Unknown	1 year	Health and Medical	Medium
7	Continually update training and provide consistent training to public health inspectors.	Educate staff on how they can promote hazard awareness and disaster risk reduction.	Dam Failure, Drought, Earthquake, Extreme Cold, Extreme Heat, Flood, Invasive Species, Landslide, Thunderstorm, Tornado, Wildfire, Winter Storm	All WMHD will take direction for the Health Officer* and Environmental Health division director	All response partners within the jurisdiction	Centers for Disease Control and Prevention – Investigations and Technical Assistance Public Health Emergency Preparedness/Utah Department of Health and Human Services	Unknown	1–3 years	Health and Medical	Medium
8	Implement water conservation to maximize the use of existing water supply	Regularly check for leaks in watering system Improve water monitoring Install low flow toilets	Drought	All WMHD would take direction from the Health Officer* and Facility Manager		Centers for Disease Control and Prevention – Investigations and Technical Assistance Public	Unknown	1 years	Health and Medical	Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		Install smart watering system				Health Emergency Preparedness/Utah Department of Health and Human Services				
9	Require water conservation during drought conditions	Develop plan to reduce/ restrict water use for landscaping; Replace grass with drought-tolerant landscape design; Incorporate drought-tolerant or xeriscape practices into landscape ordinances	Drought	All WMHD would take direction from the Health Officer*		Centers for Disease Control and Prevention – Investigations and Technical Assistance Public Health Emergency Preparedness/Utah Department of Health and Human Services	Unknown	1 year	Health and Medical	Low
10	Conduct public awareness and education campaigns	Importance of low-flow toilets and faucets, shutting off water while washing hands and during other cleaning or water usage activities, adjusting sprinklers to water only the lawn, checking for plumbing leaks and dripping faucets, installing rain-capturing devices for irrigation, installing greywater systems in homes to encourage water reuse,	Drought	All WMHD staff would take direction from the Health Officer* and PIO		Centers for Disease Control and Prevention – Investigations and Technical Assistance Public Health Emergency Preparedness/Utah Department of Health and Human Services	Unknown	1 years	Health and Medical	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		replacing grass with drought-tolerant landscape design, incorporating drought-tolerant or xeriscape practices into landscapes								
11	Install facility and mobile generators	Reduce power loss; Protect critical infra-structure; Ensure continuity of operations during power outages	Drought, Thunderstorms, Winter Storms, Flood, Extreme Cold, Extreme Heat, Tornado, Flood	All WMHD staff would take direction from the Health Officer* and Safety Officer/Maintenance Officer		Centers for Disease Control and Prevention – Investigations and Technical Assistance Public Health Emergency Preparedness/Utah Department of Health and Human Services	Unknown	1 year	Health and Medical, Energy	Low
12	Replace exterior building tiles with stucco	Reduce injury from falling tiles during seismic or wind events	Earthquake	All WMHD would take direction from the Health Officer* , Safety Officer and Maintenance Officer		Centers for Disease Control and Prevention – Investigations and Technical Assistance Public Health Emergency Preparedness/Utah Department of Health and Human Services	Unknown	1 year	Health and Medical, Safety and Security	Medium
13	Install variant-flow energy	Reduce energy use while improving efficiency in	Extreme Heat, Extreme Cold, Wildfire	All WMHD would take direction from		Centers for Disease Control and	Unknown	1 year	Health and Medical, Energy	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
	efficiency HVAC system	HVAC system. Reduce impacts of wildfire smoke.		the Health Officer*, Safety Officer and Maintenance Officer		Prevention – Investigations and Technical Assistance Public Health Emergency Preparedness/Utah Department of Health and Human Services				
14	Support mitigation with public information outreach efforts with a focus on vulnerable populations	Conduct outreach including vulnerable populations on how they can reduce their risks. For example, how to nonstructural retrofit houses to reduce the likelihood of earthquake impacts, where to relocate during a landslide, and how to retrofit homes to reduce the impacts of wildfire and wildfire smoke. Work with Weber County to develop mitigation and post-disaster messaging. Conduct classes on mitigation and disaster preparedness. Share outreach materials via social media and posting flyers in public locations.	Dam Failure, Drought, Earthquake, Extreme Cold, Extreme Heat, Flood, Invasive Species, Landslide, Thunderstorm, Tornado, Wildfire, Winter Storm	Health Officer	Weber County response agencies Hospitals Clinics (skilled nursing, LTC, senior centers, etc.) * Homeless Service Providers * VOAD * NGOs * ARC * School Districts	CDC, ASPR, DHHS	Unknown	1 year	Public Health and Medical	Medium
15	Fleet vehicle improvements and upgrades Maintaining fuel in vehicles.		Winter Storm	Health Officer		CDC, ASPR, DHHS	Unknown	1 year	Public Health and Medical	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
16	Fleet Go-Bags for up to 24-hour support		Winter Storm	Health Officer		CDC, ASPR, DHHS	Unknown	1 year	Public Health and Medical	Medium
17	Building generators to always keep power to maintain pharmaceuticals		Winter Storm	Health Officer	Weber County response agencies Hospitals Clinics (skilled nursing, LTC, senior centers, etc.) Homeless Service Providers	CDC, ASPR, DHHS	Unknown	1 year	Public Health and Medical	Medium
18	Continual capital improvements on building to ensure safety is adhered.		Tornado	Health Officer		CDC, ASPR, DHHS	Unknown	1 year	Public Health and Medical	Medium
19	Continual capital improvements on building to ensure safety is adhered.		Thunderstorm	Health Officer		CDC, ASPR, DHHS	Unknown	1 year	Public Health and Medical	Medium
20	Continual capital improvements on landscape and exterior needs		Drought	Health Officer		CDC, ASPR, DHHS	Unknown	1 year	Public Health and Medical	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
21	Continual capital improvements on building to ensure safety is adhered.		Flood	Health Officer		CDC, ASPR, DHHS	Unknown	1 year	Public Health and Medical	Medium

* *Note:* WMHD = Weber–Morgan Health Department; CDC = Centers for Disease Control and Prevention; ITA–PHEP = Investigations and Technical Assistance – Public Health Emergency Preparedness; DHHS = Department of Health and Human Services

**Note: Infectious Disease and Foodborne Illnesses were not hazards that the plan participants selected to profile in this plan update however, WMHD has included actions related to its mission focusing on these issues.

Table 419: 2024 Mitigation Action Plan of the Weber School District

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Rebuild Roosevelt Elementary School	Roosevelt Elementary School was built in 1957 using unreinforced brick masonry (URM) and may be at risk of damage due to a seismic event. Rebuilding the school up to current building standards, including for earthquake, will reduce the risk from a seismic event.	Earthquake	Weber School District's Facilities Department		Lease Revenue Bond Voters approved a bond to rebuild the school on site in November 2021.	$50M	1 year	Safety and Security	High
2	Rebuild TH Bell Jr High School	TH Bell Jr High School was built in 1963 using unreinforced brick masonry (URM) and may be at risk of damage due to a seismic event. Rebuilding the school up to current building standards, including for earthquake, will reduce the risk from a seismic event.	Earthquake	Weber School District's Facilities Department		General Obligation Bond	$100	Possible bond election in 2026. 3-5 phase project.	Safety and Security	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
3	Emergency Management Manual Creation	Emergency Operations Plans	Extreme Heat, Extreme Cold, Landslide, Thunderstorm, Wildfire, Winter Storm, Drought, Flood, Earthquake, Tornado, Avalanche, Dam Failure	WSD Public Information & Safety Officer	N/A	BRIC, HMGP, and District budget	None	August 2029	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	Medium
5	Conduct Public Outreach Hazards Awareness Program	WSD will help increased public awareness of natural hazards and mitigation measures by: 1) Attending the monthly Emergency Managers meetings that are hosted by the Weber County Emergency Manager. Collect information on mitigation and support countywide mitigation outreach by providing information to parents through take home notes or notices. 2) Share timely information or outreach educational information regarding hazards such as through newsletters. 3) Support sharing mitigation information such as: information and registration directors for Weber County's planned Special Needs Registry (Winter Storms, Extreme Heat/Cold), educational	Extreme Heat, Extreme Cold, Landslide, Thunderstorm, Wildfire, Winter Storms, Drought, Flood, Earthquake, Tornado, Avalanche, Dam Failure	WSD Student Access Department*/Public Information & Safety	Weber County	BRIC, HMGP, and District budget (Staff time)	None	1–3 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		information from the County to promote participation in the Firewise program (Wildfire), information on flood zones and flood risk reduction (Flood, Dam Failure), how to identify potential avalanche/landslide risk areas and what to do (avalanche, landslide), home retrofit and hardening recommendations (dam failure, earthquake, extreme cold, extreme heat flood, thunderstorms, tornado, wildfire, winter storms), linking to the mitigation plan (all) and upcoming County events which include mitigation education (all).								

Table 420: 2024 Mitigation Action Plan of the West Warren–Warren Water Improvement District

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Water Line Ties and Looping Connections	The water lines would be looped and connected to ensure a continuous flow throughout the entire water district. This will enable localized areas to be shut down but make water available to other areas within the district in case of a Water System Disruption. This can help	Drought, Earthquake, Extreme Cold, Extreme Heat, Flood, Invasive Species, Problem Soils, Thunderstorm, Tornado, Wildfire, Winter Storm	Maintenance teams* and hired subcon-tractors		BRIC, HMGP, HMGP-PF, FMA and District budget	$1M	1–3 years	Water Systems, Food, Water, Shelter	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		effectively mitigate the impacts of events which may only impact a small portion of the water lines.								
2	Back up well to reduce down time due to Coliform, E. Coli, Giardia, and other water borne illnesses	A 16" well in an enclosed building at approximately 5700 W 900 S to provide water during system disruptions. Post-disaster, the odds of water-borne illnesses increase, in part due to power outages and potential disruptions to the water supply system. Water systems can be disrupted due to all kinds of disasters. Power outages are also a concern. Proactively developing system redundancies will enable WW-WWID to help save lives and protect public health.	Drought, Earthquake, Extreme Cold, Extreme Heat, Flood, Invasive Species, Problem Soils, Thunderstorm, Tornado, Wildfire, Winter Storm	WW-WWID Internal staff		BRIC, HMGP, HMGP-PF, FMA and District budget	$1M	3–5 years	Water Systems, Food, Water, Shelter	Low
3	Install water storage tanks at the east and west ends of the district	To provide sufficient water during wildfires and any system disruption. Water systems may be disrupted or damaged due to any of the hazards addressed by this action. Providing system redundancies helps reduce the public's risk to these hazards.	Drought, Earthquake, Extreme Cold, Extreme Heat, Flood, Invasive Species, Problem Soils, Thunderstorms, Tornado, Wildfire, Winter Storm	WW-WWID Internal staff		One half with a development agreement with the Black Pine Development Group; second half using state grants or bonds	$2M	1–3 years	Safety and Security, Food, Water, Shelter	High

Table 421: 2024 Mitigation Action Plan of the Central Weber Sewer Improvement District

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Phase 2 Expansion Project	Converting chlorine disinfection to UV system. CWSID is investing $90M in this project to expand treatment capacity and replace old systems. New systems are built to updated standards including seismic codes. The treatment plant currently used chlorine gas. Currently that chlorine gas is stored in facilities that incorporate safety measures to mitigate the risk of release. However, some risk of release remains in the case of a significant earthquake. The Phase 2 Expansion project will eliminate the need to store chlorine gas and completely eliminate the risk posed by stored chlorine	Earthquake	Project Management Operations*	Weber Fire District LEPC	Fees, Taxes	$10M (estimated)	1 year	Water Systems Safety and Security Hazardous Materials	High
2	Training	Continue training through WEF, LEPC, and UASD. The district will expand staff technical	Earthquake, Flood, Landslide, Problem Soils, Thunderstorm,	Operations*	Weber Fire District Member Cities LEPC	Fees Taxes	$30K	3–5 years	Water Systems Safety and Security	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		and administrative training to understand and mitigate the hazards addressed. For example, staff can be trained on how to create defensible space, where problem soils and landslide areas are located and minimizing development in these areas or incorporating materials designed to reduce risk such as flexible piping. District staff can proactively identify issues like problem soils before they become a real problem as well as document damages and concerns, enabling the District to apply for mitigation funding by documenting concerns and identifying impacts which support cost-effectiveness calculations.	Tornado, Wildfire, Winter Storm						Hazardous Materials	
3	Phase 2 Expansion Project	Expansion of process structure for growth and wet weather mitigation. Complete wet weather strategy developed in the District's	Flood	Project Management Operations*	Weber Fire District Member Cities LEPC	Fees Taxes	$70M	1 year	Water Systems Safety and Security	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		Master Plan which provides for the conveyance and treatment of wet weather flows including infiltration.								
4	Backup Generator	Maintain facility operation during power outages by securing backup generation and consider additional fuel storage depending on observed demand.	Thunderstorms, Tornado, Winter Storm	Operations	Member Cities	Fees Taxes	$100K	3–5 years	Systems Safety and Security	Medium

Table 422: 2024 Mitigation Action Plan of the Weber Fire District

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Update climate change results, including flooding	Spring is shorter with temperatures rising earlier; snowmelt is flooding areas. Develop and maintain a dataset of study results to track community exposure to increased frequency and severity of disaster events. For example: changes in snowpack (avalanche, drought, flood, wildfire, winter	Drought, Earthquake, Extreme Cold, Extreme Heat, Flood, Invasive Species, Thunderstorms, Tornado, Wildfires, Winter Storms, Avalanche, Landslide, Dam Failure	Fire Chief* and training captain	Other fire departments and the County	BRIC, HMGP, HMGP-PF, FMA and District budget	Depending on damage that year thousands of dollars	1 year	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		storms), changes in temperatures and seasonal differences (drought, extreme cold, extreme heat, invasive species, tornado), changes in water supply – increases and decreases (drought, dam failure, flood, landslide, thunderstorms, wildfires). Tracking this kind of data can help when applying for mitigation grants by a) demonstrating historical impacts which help prove cost-effectiveness and b) identifying at-risk areas including new areas								
2	Making stations more earthquake prepared	Older stations have to be rebuilt or retrofitted Station destruction during an earthquake inhibits the ability to respond	Earthquake	Fire Chief* and Fire Board	N/A	Bond or use tax rate	$3M	3–5 years	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High
3	Continue to educate on	Use community risk reduction techniques to	Earthquake	Fire prevention staff* and social media staff	County and other cities	Current budget	$500	1–3 years	Safety and security, food, hydration, water, health and	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
	earthquake risk reduction	educate public on risk and steps to prepare Failing infrastructure and structure damage							medical, energy, transportation, communications, hazardous materials.	
4	Active fuel reduction	Conduct fuel mitigation in areas subject to potential wildfire danger Crews use saws and woodchippers and then take mulched wood to a recycling center	Wildfire	Fire Warden* and staff	Other departments or local governments	State wildfire, county funds	$10,000	1 year	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	High
5	Multilingual outreach program	Ensure that all citizens can understand the community risk reduction plan including sharing information on steps the public can take to reduce their risks. Expand mitigation social media presence by having links on social media to different translations. Share social media graphics in English and Spanish on hazard risk reduction monthly with Weber County support.	Drought, Earthquake, Extreme Cold, Extreme Heat, Flood, Invasive Species, Thunderstorms, Tornado, Wildfires, Winter Storms, Avalanche, Landslide, Dam Failure	Public Information Officer* and social media staff	The County and Sheriff	BRIC, HMGP, HMGP-PF, FMA and District budget	$5,000	1 year	Safety and security, food, hydration, water, health and medical, energy, transportation, communications, hazardous materials.	Medium

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
		Update the website to include direct reference to social media as the means of obtaining risk reduction information on a regular basis including in English and Spanish. Reduce risk to all hazards by educating the public on how to identify and reduce risk, such as through sharing data on hazard location like the hazard mitigation and flood maps, home hardening and defensible space education, elevating utilities, utilizing hazard-resistant building materials, identifying shelters and evacuation routes, and signing up for emergency communications.								

Table 423: 2024 Mitigation Action Plan of the North View Fire District

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
1	Update Community Wildfire Protection Plan (CWPP)	Reduce potential impact to life and property in wildland–urban interface areas	Wildfire	Deputy Fire Chief* and Fire Captain	Cities of North Ogden and Pleasant View; Weber Fire District, and Division of Forestry Fire and State Lands	Wildfire prevention grants	Minimal	1-years	Safety and Security	Low
2	Increase Earthquake Awareness	Work with engineers and other experts to identify how to make facilities safer during earthquakes	Earthquakes	Deputy Fire Chief* and Fire Chief	Engineering firms and local contractors	BRIC grant, property taxes	Depends on the seismic analysis	1–3 years	Preparedness and ability to respond in an emergency	Low
3	Encourage property owners about flood mitigation techniques	Work with local jurisdictions to present information about flooding including mitigation information such as residential and neighborhood scale flood protection projects like rebuilding with flood resistant materials and the dangers of flooding post-fire. Mitigation information can be shared at the monthly public board meetings.	Flood, Winter Storm	Fire Department Admin Staff	Cities of North Ogden, Pleasant View, and Harrisville	BRIC grant, excess revenue in budgets	Minimal	3–5 years	Preparedness and awareness	Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
4	Map and assess vulnerability to wildfire	Address safety concerns and ensure adequate access and supply of water, given continued development in wildland–urban areas	Wildfire	Deputy Fire Chiefs*	Cities of North Ogden and Pleasant View	Wildfire prevention grants	Minimal	3–5 years	Safety and Security	Low
5	Educate vulnerable population regarding the dangers of Extreme Heat and Cold Temp.	We will develop and meet with the vulnerable citizens to educate them about how to protect themselves during extreme temperatures. We will also use both of our fire stations for heating and cooling centers.	Extreme Heat and Extreme Cold	Fire Captain* and Admin Staff	North Ogden City, Pleasant View City, Harrisville City, North Ogden Senior Center	District Budget	$500 for fliers and the utility costs to utilize our stations as heating and cooling centers	3–5 years	Safety and Sheltering	Medium
6	Encourage development standard for the hillside areas.	Deputy Chief Barker will continue to attend local City Development meetings and will work with City staff in developing the development standards for the hillsides.	Landslide	Deputy Chief	North Ogden City and Pleasant View City	District and City Budgets	Minimal	3–5 years	Safety and Security	Low

#	Action Title	Description	Hazard Addressed	Responsible Staff	Potential Partners	Potential Funding	Cost Estimate	Timeframe	Community Lifelines	Priority
7	Winter Storms Warning Education	In correlation with item 5, we will educate our vulnerable population about the risks of severe winter storms. We will also open both of our stations to be heating centers to ensure that the vulnerable populations have a warm center to stay out of the weather.	Winter Storm	Fire Captain* and Administration Staff.	North View Senior Center, North Ogden City, Pleasant view City and Harrisville City.	District Budget	Minimal	3–5 years	Safety and Sheltering	Medium

Plan Maintenance and Implementation

	D1. Is there discussion of how each community will continue public participation in the plan maintenance process? (Requirement 44 CFR § 201.6(c)(4)(iii))
	D2. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan in a five-year cycle)? (Requirement 44 CFR § 201.6(c)(4)(i))
	D3. Does the plan describe a process by which each community will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement 44 CFR § 201.6(c)(4)(ii))

Plan Integration

Plan integration is the process by which the prior and current pre-disaster mitigation plans are incorporated into other planning mechanisms. In this case, planning mechanisms refer to the governance structures used to manage local land use development and community decision making, such as budgets, comprehensive plans, capital improvement plans, economic development strategies, climate action plans, and other long-range plans.

Integration of the 2016 Plan

The plan participants integrated the prior 2016 pre-disaster mitigation plan into planning mechanisms as described in Table 424. Hazard risk information and mitigation projects or concerns identified in the prior 2016 mitigation plan were integrated into other planning mechanisms as described below. Where no integration occurred, this is noted.

Table 424: Integration of Previous Mitigation Plan

Plan Participant	Planning Mechanism
Weber County	One of the biggest mitigation projects for which the County used NRCS funding was the diversion channel on the Little Weber to mitigate against another flood like the one in 2011. This diversion channel alleviated some of the pressure on the Weber River on the west end of the lower valley during the 2023 flooding. In October of 2023, the Emergency Management Planner/Tech, Eli Johnson was assigned to the Economic Development Working Group to provide input about hazards and risks in any development. Eli has vast experience about the natural events in Weber County for the last 25 years. He attends meetings and gives insight and advice to the Director.

Plan Participant	Planning Mechanism
	A new ordinance requires a 300' setback from the high water mark of the flood-plain for any development. This was put into the County's General Plan update last year. Map: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.webercountyutah.gov/planning/documents/western-weber-plans/future-at-parks-and-rec-map-west-central-weber.pdf General Plan: chrome-extension://efaidnbmnnnibpcajpcglclefind-mkaj/https://www.webercountyutah.gov/planning/documents/western-weber-plans/1-final-western-weber-gp.pdf See page 117 (Chapter 6).
Farr West City	None
Harrisville	None
Hooper	Land use and zoning ordinance. No building in 100-year flood plain. The limit was raised 5' so no underground utilities would be in water.
Huntsville	We have an emergency response plan called the Rapid Disaster Assessment Program (RDAP). This plan has come down through the state and county. The Mayor, Town Council, Emergency Manager, CERT Manager, local faith-based groups, and citizens are involved. We are getting maps and forms in place and training people how to do it. Our CERT Manager is in charge of this program, even though it involves more than just CERT.
Marriott-Slaterville	None
North Ogden	None
Ogden	Used city-wide Capital Improvement Plans (CIPs) and Community Economic Development (CED) plans. Incorporated into the Emergency Operations Plan (EOP) in decision making and plan design. Planning sessions with city administration and stakeholders.
Plain City	None
Pleasant View	Budgets, capital improvements plan, and general plan related to last hazard mitigation plan. The information incorporated into the General Plan includes the Sensitive Lands study components. Additionally, the budgets and Capital Improvements Plan specifically call out and address the capital projects included herein and the funding projections and plans to address these from a budgetary standpoint.
Riverdale	None
Roy	None
South Ogden	None
Uintah	None

Plan Participant	Planning Mechanism
Washington Terrace	The prior hazard mitigation was incorporated into the CIP, CED, and EOP.
West Haven	None
Central Weber Sewer Improvement District	None
Hooper Water Improvement District	None
North View Fire District	None
Ogden School District	CIP included steps to mitigate risks in facilities (e.g., seismic reinforcement, power failures).
Pineview Water System	None
Roy Water Conservancy District	The planning mechanisms RWCD used were budgeting and capital improvement plans. The projects from the previous mitigation plan, such as access manholes on the east and west side of the freeway for RWCD's transmission lines and remove and replace pump, were budgeted and completed in the years between the previous mitigation plan and now.
Taylor West Weber Water District	None
Weber–Morgan Health Department	None
Weber School District	Weber School District Emergency Operations Plans Weber School District Strategic Plan Weber School District Emergency Operations Plans – Includes risk and safety assessments, protocols, maps, facility upgrades, and mitigation strategies related to building safety and security. Weber School District Elevate 28 Strategic Plan includes mitigation strategies related to safe and healthy schools. Specifically, better securing school buildings and providing faculty and staff with a means to contact emergency services through the use of a wearable panic alert device. The goal is to have all schools equipped with this technology by 2028.
Weber Fire District	Earthquake, wildfire mitigation projects.

Plan Participant	Planning Mechanism
West Warren–Warren Water Improvement District	None

Integration of the 2024 Plan

Integrating the current 2024 pre-disaster mitigation plan into other planning mechanisms is intended to help promote a comprehensive mitigation program. In most cases, plan integration will be the responsibility of the representatives of the plan participants who participated in this plan update. These representatives will be responsible for integrating items from this plan such as information and maps of each hazard as found in the risk assessment section and/or the mitigation strategy including the actions into other planning mechanisms. Information can be integrated through carefully reviewing this mitigation plan and selecting the appropriate data or strategy to be incorporated into other planning mechanisms. Where individual processes or planning mechanisms differ, that is noted in Table 425.

Table 425: Future Plan Integration

Plan Participant	Planning Mechanism
Weber County	The Economic Development Director has a Strategic Plan, and she would like to include a budget provision so her department can create an Economic Development Plan. Emergency management and economic development staff would work together to identify strategies and provisions that would help mitigate risks for development. The finance department plans to incorporate infrastructure into the next budget cycle, including language for developing an infrastructure priority list to prepare for road, bridge, stormwater, and sewer repair and replacement. Mitigation actions will be evaluated for inclusion in the budget.
Farr West City	The Farr West Emergency Preparedness Manager will incorporate this hazard mitigation information into the Farr West Emergency Management Plan. The plan is under revision by the people that constitute the Community Emergency Response Team. When that review and update is complete, the plan will be given to the city operations, management, planning and city council, to include the mayor for review and finalization. Farr West will incorporate information, including data and actions addressing flood risk, into the Stormwater Management Plan. The Stormwater Management Plan is reviewed on an annual basis. The current draft is effective through November 2025. Aligning the plan with the mitigation plan may enable Farr West City to be eligible for future mitigation grant opportunities.
Harrisville	The City will integrate this plan into its capital improvements plan. There are several large-scale projects that will have to be budgeted for and included in long-term planning.

Plan Participant	Planning Mechanism
Hooper	The City has budgeted for an emergency preparedness fund that will be used in part to train citizens in the CERT program and other areas that would be most beneficial to the city, including hazard mitigation.
Huntsville	The City will establish an Emergency Response Council to create its emergency response plan. Currently, the city has an emergency response plan called the Rapid Disaster Assessment Program (RDAP). This plan has come down through the state and county. The Mayor, Town Council, Emergency Manager, CERT Manager, local faith-based groups, and citizens are involved. The city is actively in the process of getting maps and forms in place and training people how to do it. The CERT Manager is in charge of this program, even though it involves more than just CERT. The representatives of Huntsville who participated in the mitigation plan update will share the draft with the CERT Manager for inclusion of hazard data in the emergency response plan. The city is also preparing a Capital Improvement Plan. This plan is updated on an annual basis by the Finance Clerk with input from Town Council. Council members submit requests to the Finance Clerk and will be responsible for identifying as appropriate and incorporating mitigation actions from this plan. Local match for mitigation actions can be identified in the Capital Improvement Plan. There will be multiple opportunities to evaluate whether
Marriott-Slaterville	The City will add projects to the Capital Investments Plan and ensure that they can be included in grants, such as Capital Development Block Grants. This plan is updated annually. This project will be a team effort by the city staff, including staff involved in the hazard mitigation plan update who will be able to share information and actions from this plan.
North Ogden	Zoning – Review current ordinances for needed updates. Budgets – Include in discussions about budgets. Capital Improvement Plan – Plan out when actions can take place. Economic development – Strategize with property owners to help the community build resilience as properties are built.
Ogden	Plan integration will occur through meetings with all the city department heads to discuss potential projects that will benefit the citizens and make Ogden a more resilient community. The annual budget meeting will be an important opportunity to integrate this plan into the annual budget. Further, the plan will be integrated into the CIP as projects are also evaluated and prioritized for that plan depending on the need.
Plain City	Planning Commission is currently working on and will be updating the future land use and zoning ordinance. To be completed 2025, this will be in conjunction with the updated (2024) floodplain map and sensitive land use ordinance that includes wetlands, high water table and floodplain, such as is discussed in this plan. Further, the City Council/Planning Commission/city staff will evaluate the completed hazard mitigation plan and identify any risks that should be considered in land use and zoning ordinance update. An important component of this process will be providing staff training on mitigation, including making

Plan Participant	Planning Mechanism
	sure everyone understands their role in implementing effective mitigation measures as outlined.
Pleasant View	The City Administration will be primarily responsible for plan implementation and integration into various city long-range plans, including the general plan and sensitive lands evaluations. City Administration will collaborate closely with City Departments and the Fire District to proactively implement new plans. This will involve joint planning sessions, coordinated resource allocation, and regular communication to ensure alignment. The City Administration will oversee the integration of these plans, while City Departments will handle execution within their respective areas. The Fire District will work alongside other departments to address safety concerns, conduct training, and ensure that emergency response capabilities are fully integrated into the broader city initiatives. This proactive approach ensures smooth, efficient implementation across all involved entities.
Riverdale	The hazard mitigation plan and associated mitigation actions will be incorporated into the annual meeting with all City department heads and governing bodies before flood season so plans can be made earlier for addressing any potential flooding issues along the riverbed. This decision-making planning process will be supported by the Riverdale Fire Department.
Roy	The participants in this plan update, including the Fire Department, Public Works, Community Development, City Manager, and more will work with all City departments and the administration on mitigation and development plans, such as the General Plan and Capital Improvement Plan, which are updated every five years. The process for plan integration will be to use planning sessions and meetings to discuss potential projects that will benefit the citizens and make Roy City a more resilient community. Additionally, the city will and use full-scale exercises to find gaps in planning, operations, and other areas, and address them in future plans.
South Ogden	**Local Emergency Operations Plan (LEOP) Revision (2027)** The representatives of South Ogden who participated in this plan update will be responsible for integrating the risk assessment data on hazards such as drought, thunderstorms, tornadoes, and problem soils, along with the associated mitigation strategies, into the upcoming revision of the Local Emergency Operations Plan (LEOP) scheduled for 2027. This will involve a comprehensive review of the current LEOP, identifying areas where the mitigation strategies can be incorporated, and ensuring that all relevant actions align with the overall emergency management goals of the city. **Annual Budget Planning** The mitigation strategies outlined in this plan will be integrated into the city's annual budget planning process. Each fiscal year, the Public Works Director and the Emergency Manager will work collaboratively to identify funding needs for specific mitigation actions and prioritize these initiatives based on risk assessments and community needs. This will ensure that necessary resources are allocated for the implementation of mitigation actions such as stormwater management improvements and drought awareness campaigns.

Plan Participant	Planning Mechanism
	Community Development and Land Use Planning The integration of mitigation strategies will also occur within the community development and land use planning processes. The city will work to ensure that new developments comply with established mitigation standards and practices, such as incorporating flood control measures and considering soil health in planning decisions. The Planning Commission will review proposed developments to ensure alignment with the goals of the Hazard Mitigation Plan. **Public Outreach and Education Programs** A public outreach and education program will be established to inform residents about the hazards identified in this plan and the mitigation strategies being implemented. The Emergency Manager will lead efforts to host community workshops and informational sessions, which will incorporate elements of the mitigation plan into public awareness campaigns, fostering community resilience and encouraging proactive participation in disaster preparedness. **Summary** By integrating these mechanisms into South Ogden's planning framework, we will enhance our capability to address identified hazards effectively. The ongoing evaluation of this Hazard Mitigation Plan will be facilitated by the consultant/planning staff, and applicable data will be incorporated into the LEOP, annual budget, community development plans, and public outreach programs to ensure a comprehensive approach to hazard mitigation.
Uintah	Coordinating with the LAA program to update the general plan and include hazard information in the update.
Washington Terrace	Incorporate the current hazard mitigation plan into the EOP update. Plan participants for Washington Terrace will work closely with all City departments and the administration to develop and implement mitigation and development strategies. Engage in planning sessions and meetings to explore and discuss potential projects that will benefit the citizens and increase community resilience. Conduct outreach programs to gather feedback from residents on future planning initiatives. Use the EOP as a framework for making decisions on mitigation issues and identifying potential problems. Perform full-scale exercises to uncover gaps in planning, operations, and other areas, and incorporate solutions into future plans. Washington Terrace will also incorporate this hazard mitigation plan, including mitigation actions, into the Capital Improvement Plan (CIP). The CIP is updated annually. Asset vulnerability data and identifying effective actions is an important part of developing the CIP.
West Haven	The representatives of West Haven who participated in this plan update will be responsible for integrating key information, including on the risk assessment such as vulnerabilities and mitigation actions, into other planning mechanisms such as the zoning ordinance and Local Emergency Operations Plan.

Plan Participant	Planning Mechanism
Central Weber Sewer Improvement District	The Capital Improvement Plan is scheduled to be updated in 2028. Updating the CIP provides an opportunity to evaluate the current mitigation plan, including mitigation actions and risks to the district, in order to identify for integration with the CIP.
Hooper Water Improvement District	The General Manager will be responsible for integrating the Hazard Mitigation Plan into the Capital Facilities Plan and the Financial Outlook Plan. This will be done by evaluating each facility for its hazard risk (in this case, earthquakes), and the associated data will be evaluated for the district's financial ability to pay for the mitigation and the district's physical ability to perform the mitigation and do any associated maintenance required after installation.
North View Fire District	Capital Improvement Plans – The District has identified areas where future fire stations will help the community, and parcels of land have been identified to purchase in the next 10 years. The hazard mitigation plan will inform these kinds of decision by identifying risks and areas of risk within the district's service area. The budgeting strategy has changed to include scheduling capital improvements, and the District is collecting and saving revenue to pay for these improvements. This will help the responses to emergencies and ensure that resources are strategically placed in the District's communities.
Ogden School District	Capital Improvement Plan – Capital Improvement Plan includes consideration for risk mitigation such as: renovation, replacement, or closure of unsound school buildings and the addition of solar power and/or backup generators. With each annual update of the plan, consideration is given to the presence and magnitude of risks along with the potential to mitigate those risks. The responsibility for integrating the plan (and risk mitigation) is a collaborative effort between our facilities team, CFO, district safety team, and superintendent. The facilities team conducts ongoing assessments of risks and recommends actions to address needs. The CFO seeks funding sources and makes allocation recommendations. The district safety team acts as a liaison between administration and stakeholders. The superintendent has final authority for approval of actions. As noted in this document above, the following incorporates action items for consideration. • Mitigation Plan Action Items: › Bonneville Elementary School - Not seismically reinforced - Planned closure at the end of 2024-2025 school year › Gramercy Elementary School - Not seismically reinforced - Planned closure at the end of 2024-2025 school year › James Madison Elementary School - Not seismically reinforced - Ended use as elementary school at end of 2022-2023 school year. Limited use by community partners in older sections. Adult education in newer sections. › Wasatch Elementary School - Not seismically reinforced - A new addition has been added to the school, moving some grades into a modern

Plan Participant	Planning Mechanism
	structure. The original C3A single-story structure has not been retrofitted with seismic upgrades for current standards. › Highland Junior High School - Original C3A facility has not been fully retrofitted with seismic upgrades for current standards. › Mound Fort Junior High School - Some roof upgrades needed. › Mount Ogden Junior High School - C3 facility has not been fully retrofitted with seismic upgrades for current standards. › George Washington High School - C3A facility has not been fully retrofitted with seismic upgrades for current standards. Building slated for closure within approximately 1-5 years. › Purchase backup generators for the following locations: Highland, Mound Fort, Wasatch › Purchase a portable boiler system that uses diesel fuel in case of an interruption in the natural gas supply. › Distribution of information (preferably digital materials) provided by federal, state, county, local agencies to Ogden School District stakeholders.
Pineview Water System	This mitigation plan will be beneficial when writing a new Master Plan for the System's entities. Pineview Water System has 3 Districts that are each self-funded. Management will have to keep up on the future of the mitigation processes. The Hazard Mitigation Plan will provide a starting point for this risk and risk reduction data when developing the new Master Plan.
Taylor West Weber Water District	The Manager of Taylor West Weber Water District will be responsible for integrating the risk assessment data on the list of hazards and/or mitigation strategy including actions into the water conservation plan as well as the cross-connection plan and the emergency action plan. This Hazard Mitigation Plan will be evaluated by the board, our legal team, and appropriate staff. If applicable, data will be incorporated into all necessary plans
Roy Water Conservancy District	RWCD will continue to use budgeting and capital improvement plans as planning mechanisms. Each year, RWCD budgets an amount of money to be used toward projects such as mainline and service line replacement projects especially in the older parts of RWCD's water system. RWCD has a Capital Facilities Plan that is updated every five years. The next update is scheduled for 2027. RWCD's Capital Facilities Plan has and will continue to analyze RWCD's assets in order to assess their life cycle and future replacement. The assets are prioritized based on these criteria and the annual budget is based upon the replacement or repair of the assets based on their priority. The risks and mitigation actions from this hazard mitigation plan will be assessed on an annual basis for incorporation. These plans will be developed by the engineering consultant who will be provided the adopted hazard mitigation plan and approved by the Board of Trustees.
Weber Fire District	Due to rising temperatures, flooding is occurring more frequently than before. Climate change is discussed throughout this mitigation plan. This kind of hazard information should be incorporated where appropriate to ensure the

Plan Participant	Planning Mechanism
	county is prepared for changing conditions. Weber Fire District can help integrate this and other hazard information especially for wildfire and flooding into plans such as the Climate Change Adaptation Plan, Capital Improvement Plan, Community Wildfire Protection Plan, and Local Emergency Operations Plan.
Weber-Morgan Health Department	The WMHD will review the WMHD All-Hazards Plan and Capital Improvement Plan and incorporate hazard data or mitigation actions on an annual basis.
Weber School District	The representatives of the Weber School District who participated in this plan update will be responsible for integrating the risk assessment data and/or mitigation strategy including the actions into her planning mechanisms. This Hazard Mitigation Plan will be evaluated by the applicable consultant/planning staff and applicable data will be incorporated into the Weber School District EOPs and Strategic Plan.
West Warren–Warren Water Improvement District	Will use all the STAPLEE criteria as described in the hazard mitigation plan in other decision-making processes. Currently using civil engineers to do a feasibility study which will be used to create a general plan for future infrastructure needs. Will use the general funds and possibly the capital facilities and improvement funds to pay for the study. Will incorporate hazard risk data and mitigation actions into the general plan outlining how to reduce risk to infrastructure. Also beginning to annex any properties in the district that are not paying taxes. There will be many public hearings and opportunities for public meetings to receive community input. Once plans are approved, apply for state grants and/or take out a bond and/or create another agreement with developers to help with additional funds. The aim is to plan for future economic growth and development, protect natural resources, mitigate disasters, and create a secure and stable culinary water utility infrastructure to service the area for a long time.

Plan Monitoring and Evaluation

Periodic monitoring and updates of this Plan are required to ensure that mitigation goals and actions of the planning area are kept current and that local mitigation strategies are being carried out. Plan participants shall review this Plan each year or following a disaster declaration if the disaster warrants additional consideration of the mitigation plan. The County, including the Weber County Emergency Management and Homeland Security Program Director, will be responsible for initiating this annual review. Each plan participant, including the individuals who participate in this plan update, will be responsible for evaluating the ongoing effectiveness of this Plan. An evaluation form to help support this annual review is in Appendix A. The Plan will also be revised to reflect new priorities and lessons learned or to address specific hazard incidents arising out of a disaster. If the participating jurisdictions or DEM determines that a modification of the Plan is warranted, an amendment to the Plan may be initiated.

Continued Public Involvement

The public will be invited to continue to participate in the plan maintenance and update process through the Weber County website. The final adopted plan will be available on the County website. The public will be invited to submit any feedback to the Weber County Emergency Management and Homeland Security Program Director. Each plan participant will be responsible for advertising this opportunity to continue to participate in the plan maintenance and update process. Weber County will send out biannual outreach reminders to the plan participants as well as discuss this component of the plan maintenance process in the county emergency managers meeting, which includes all city, county, school, and special district emergency managers. The plan participants will share information on social media and through outreach campaigns, including multiple methods of in-person and virtual outreach to the whole community. The plan participants will evaluate if any of the information should be incorporated into the plan during the annual review process and the plan update process.

Table 426 Continued Public Involvement Methodology

Plan Participant	Continued Public Involvement Methodology
Weber County	• Maintain the mitigation plan on the Weber County website including specific information for the public on how to provide input on the plan to the Weber County Emergency Management and Homeland Security Program Director. • Remind plan participants biannually via email and at the county emergency managers meeting to solicit public input on the mitigation plan. • Twice a year, use social media to share the link to the hazard mitigation plan, including the public feedback contact information. • Share wildfire information and encourage feedback on the hazard mitigation plan at classes on WUI mitigation including defensible space and home hardening. • Work with the Weber-Morgan Health Department to develop and host public education campaigns for vulnerable populations, including classes and posting flyers in public locations. Classes can be used to directly receive feedback from vulnerable populations.
Farr West City	• Twice a year, use social media or website to share the link to the hazard mitigation plan, including the feedback email address. • Incorporate the hazard mitigation plan including the opportunity to provide feedback into public awareness campaigns on extreme cold, extreme heat, thunderstorms, and wildfire.
Harrisville	• Twice a year, use social media, website, or community newsletter to share the link to the hazard mitigation plan, including the public feedback contact information. • Share the mitigation plan link and request for feedback during public education awareness campaigns on drought, extreme heat, extreme cold, tornado, invasive species, and wildfire. Post notices at three in-person locations used to communicate with residents.

Plan Participant	Continued Public Involvement Methodology
	• Incorporate the mitigation plan and feedback into monthly luncheon with seniors, a vulnerable population in Harrisville.
Hooper	• Twice a year, use social media (Facebook) or website to share the link to the hazard mitigation plan, including the public feedback contact information. • Share the hazard mitigation plan and request for feedback at the Emergency Preparedness fair. • Conduct direct outreach to WUI communities and solicit input on hazard risk, including the hazard mitigation plan. • Solicit input specifically from vulnerable populations through direct public outreach campaigns.
Huntsville	• Twice a year, use social media, website, or community newsletter to share the link to the hazard mitigation plan, including the public feedback contact information. • Share the link to the hazard mitigation plan including the request for public feedback via water bills. • Update town website to include additional mitigation information, including the hazard mitigation and request for public feedback.
Marriott-Slaterville	• Twice a year, use social media or website to share the link to the hazard mitigation plan, including the public feedback contact information. • Add information on hazards, including linking to the hazard mitigation plan and requesting public feedback, to the city newsletter. • Update the website to include hazard mitigation information, including the hazard mitigation plan and method for receiving public feedback.
North Ogden	• Twice a year, use social media (Facebook), website, or community newsletter to share the link to the hazard mitigation plan, including the public feedback contact information. • Discuss the hazard mitigation plan and solicit feedback from vulnerable populations like seniors and people with disabilities during direct outreach campaign. Include multiple forms of outreach, such as posts at the North View Senior Center. • Share information with homeowners and renters as a part of winter storm outreach campaign.
Ogden	• Twice a year, use social media or website to share the link to the hazard mitigation plan, including the public feedback contact information. • Share link to hazard mitigation plan include request for public feedback via monthly newsletter/utility bill. • Promote mitigation including soliciting feedback on the mitigation plan during outreach campaign to residents in the WUI.
Plain City	• Twice a year, use social media (Facebook), website, or community newsletter to share the link to the hazard mitigation plan, including the public feedback contact information.

Plan Participant	Continued Public Involvement Methodology
Pleasant View	• Twice a year, use social media or website to share the link to the hazard mitigation plan, including the public feedback contact information. • Review hazard mitigation plan at CERT trainings and request feedback be sent to the Weber County Emergency Management and Homeland Security Program Director. • Share wildfire data and the mitigation plan including soliciting feedback through wildfire public awareness campaign.
Riverdale	• Twice a year, use social media or website to share the link to the hazard mitigation plan, including the public feedback contact information. • Share the hazard mitigation and request for public feedback through public education and awareness campaigns on extreme heat, extreme cold, and wildfire. These campaigns will include high-risk populations, including residents located in high-risk areas and the special needs population. • Encourage CERT team to share information with the public on the availability of the updated hazard mitigation plan and how to provide feedback.
Roy	• Twice a year, use social media or website to share the link to the hazard mitigation plan, including the public feedback contact information. • Share the link to the hazard mitigation plan and how to provide feedback via the monthly newsletter in the utility bills.
South Ogden	• Twice a year, use social media (Facebook, Instagram), website, or monthly newsletters to share the link to the hazard mitigation plan, including the public feedback contact information. • Share the hazard mitigation plan and request for public feedback through public outreach and education program hosted by the Emergency Manager. This will include community workshops and informational sessions.
Uintah	• Twice a year, use social media (Facebook, Instagram) or website to share the link to the hazard mitigation plan, including the public feedback contact information. • Share mitigation information, including a link to the hazard mitigation website which includes the request for public feedback, in the monthly newsletter. • Share the mitigation plan and request for public feedback via the extreme heat and extreme cold public awareness program.
Washington Terrace	• Twice a year, use social media (Facebook, Instagram, etc.), website, or community newsletter to share the link to the hazard mitigation plan, including the public feedback contact information. • Share the mitigation plan and solicit feedback through public awareness campaigns on flooding, thunderstorms, earthquakes, extreme heat, extreme cold, wildfires, and more. This can include the city newsletter, social media, in-person school visits and neighborhood meetings. • Share mitigation information and solicit feedback on the current plan during the EOP update community outreach and at an Emergency Fair.

Plan Participant	Continued Public Involvement Methodology
West Haven	• Twice a year, use social media to share the link to the hazard mitigation plan, including the public feedback contact information. • Share the mitigation plan and solicit feedback on the plan through an education campaign conducted via social media, property utility billing, rental agency agreements with tenants, and the emergency management celebration booth.
Central Weber Sewer Improvement District	• Twice a year, use social media or website to share the link to the hazard mitigation plan, including the public feedback contact information.
Hooper Water Improvement District	• Twice a year, use social media, website, and community newsletter to share the link to the hazard mitigation plan, including the public feedback contact information.
North View Fire District	• Twice a year, use social media or website to share the link to the hazard mitigation plan, including the public feedback contact information. • Posted notice regarding the hazard mitigation plan and request for feedback at the station during Fire Prevention Week.
Ogden School District	• Twice a year, use social media (X, Facebook, Instagram) or website to share the link to the hazard mitigation plan, including the public feedback contact information.
Pineview Water System	• Link to the hazard mitigation plan and request for feedback via social media (Facebook), website or posted flyers. Share a reminder at least twice a year.
Taylor West Weber Water District	• Twice a year, use social media (Facebook) or website to share the link to the hazard mitigation plan, including the public feedback contact information. • Send out link to the mitigation plan and request for public feedback through customer bills.
Roy Water Conservancy District	• Twice a year, use social media (Facebook and X) or website to share the link to the hazard mitigation plan, including the public feedback contact information.
Weber Fire District	• Twice a year, use social media or website to share the link to the hazard mitigation plan, including the public feedback contact information. • Share the mitigation plan and request for public feedback during public education campaign on earthquake, wildfire, and other hazards. • Provide bilingual option to provide feedback on the hazard mitigation plan via social media.

Plan Participant	Continued Public Involvement Methodology
Weber-Morgan Health Department	• Twice a year, use social media (Facebook, Instagram, X) or website to share the link to the hazard mitigation plan, including the public feedback contact information. • Conduct public awareness campaign and include the hazard mitigation plan link with the request for public feedback to be sent to the Weber County Emergency Management and Homeland Security Program Director. • Coordinate with Weber County to develop and distribute information on hazards and mitigation, including the mitigation plan and request for public feedback, through classes, social media, and posting flyers in public locations. Direct feedback from vulnerable populations can be solicited through classes. • Encourage Public Health Inspectors to promote hazard awareness and share disaster risk reduction information (such as the mitigation plan link with request for feedback) directly with community members. • Share information and solicit feedback and monthly Public Board of Health meetings.
Weber School District	• Twice a year, use social media, website, newsletter to share the link to the hazard mitigation plan, including the public feedback contact information. • Share the mitigation plan, request for public feedback, and county-lead classes where feedback will be solicited via take home notes or notices to parents.
West Warren–Warren Water Improvement District	• Twice a year, use social media (Facebook) or website to share the link to the hazard mitigation plan, including the public feedback contact information. • Incorporate link to hazard mitigation plan and request for feedback on flyers posted at churches around the community. • Share link to mitigation plan and request for public feedback via summer monthly bills.

Plan Amendment

The Utah DEM State Hazard Mitigation Officer, Weber County, or a representative of any jurisdiction or special district in Weber County may initiate an amendment to the plan. Any jurisdiction or special district seeking to amend the plan will work with the County to submit an official plan amendment request to DEM and, subsequently, FEMA.

Upon initiation of an amendment to the Plan, DEM will forward information on the proposed amendment to all interested parties, including, but not limited to, all affected City or County departments, residents, and businesses. Depending on the magnitude of the amendment, the full planning committee may be reconstituted.

At a minimum, the information will be made available through public notice in a newspaper of general circulation or on the DEM website at dem.utah.gov. The review and comment period for the proposed Plan amendment will last for no less than 45 days.

At the end of the comment period, the proposed amendment and all review comments will be forwarded to participating jurisdictions for consideration. If no comments are received from the reviewing parties in the specified review period, such will be noted. DEM will review the proposed amendment, along with comments received from other parties, and submit a recommendation to FEMA in 60 days.

In determining whether to recommend approval or denial of a Plan amendment request, the following factors will be considered:

- New issues or needs have been identified which were not adequately addressed in the Plan; and/or
- There has been a change in information, data, or assumptions from those on which the Plan was based, and/or
- The nature or magnitude of risks has changed, and/or
- There are implementation problems, such as technical, political, legal, or coordination issues with other agencies.

Upon receiving DEM's recommendation, a public hearing will be held. FEMA will review the recommendation (including the factors listed above) and any oral or written comments received at the public hearing. Following that review, FEMA will take one of the following actions:

1. Adopt the proposed amendment, as presented.
2. Adopt the proposed amendment with modifications.
3. Defer the amendment request for further consideration and/or hearing.
4. Reject the amendment request.

Plan Update Process

The entire Plan, including any background studies and analysis, shall be revised and updated every five years to determine if there have been any significant changes in the region that would affect the Plan. Increased development, increased exposure to certain hazards, the development of new mitigation capabilities or techniques, and changes to federal or state legislation are examples of changes that may affect the condition of the Plan.

The Weber County Sheriff's Office will lead the next plan update. The planning team, including the plan participants and stakeholders invited to participate in this plan update, will be reconstituted for the five-year review/update process. Typically, the same process that was used to create the original Plan will be used to prepare the update.

Plan Implementation

The plan participants will be responsible for implementing the pre-disaster mitigation plan once it has been adopted.

Plan Adoption and Implementation

	F2. For multi-jurisdictional plans, has the governing body of each jurisdiction officially adopted the plan to be eligible for certain FEMA assistance? (Requirement 44 CFR § 201.6(c)(5))

Once this plan is reviewed, the plan participants will adopt the plan. Final adoption resolution letters and any subsequent amendments will be incorporated into this section.

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Appendix A: Plan Effectiveness Evaluation

Appendix A: Plan Effectiveness Evaluation

This form is intended to support plan maintenance. Using this form, the Mitigation Planning Team can evaluate the effectiveness of the hazard mitigation plan throughout the five-year update cycle. Where recommended changes are identified, the Mitigation Planning Team can amend the plan or integrate the findings into the next plan update.

Weber County Pre-Disaster Mitigation Plan – Plan Effectiveness Evaluation

Plan Section	Question	Comments
Planning Process	Have there been local staffing changes or additional staff that should be invited to join the mitigation planning team?	
	Are there additional partners or stakeholders that should be invited to participate in the hazard mitigation planning process? List organization, title, and name if applicable.	
	Has there been any public outreach or feedback from the community on hazard mitigation or the hazard mitigation plan?	
	Have you integrated the current hazard mitigation plan into any other planning mechanisms? List and describe if so.	
Hazard Profiles	Has a natural and/or human-caused disaster occurred in this reporting period? If so, describe it and suggest next steps.	
	Are there natural and/or human-caused hazards that have not been addressed in this plan which should be?	
	Are additional maps/data or new hazard studies available? If so, what have they revealed?	
	Have there been changes in development patterns that could influence the effects of hazards or create additional risks?	
	How has the vulnerability analysis changed as a result of implementing mitigation actions?	
	What different or additional resources (financial, technical, and human) are available now for mitigation planning and action?	

Plan Section	Question	Comments
Mitigation Strategy	Must the goals be adjusted in any way?	
	Should new mitigation actions be added to the Mitigation Action Plan?	
	What mitigation actions have been implemented? Any success stories or lessons learned?	
	Should the mitigation actions in the Mitigation Action Plan be reprioritized, deleted, or revised?	
	Are the available resources sufficient for performing the mitigation actions in the Mitigation Action Plan? What additional resources are needed?	

Appendix B: Glossary

Appendix B: Glossary

Key Terms

Abutment (dam) – the valley side against which a dam is constructed.

Acre-foot of water – approximately 326,000 gallons of water, or approximately a football field covered by one foot of water.

Active faults – An active fault is defined as a fault displaying evidence of displacement along one or more of its traces during Holocene time (about the last 11,000 years).

Aftershocks – earthquakes during the seconds, hours, days, and months following a larger earthquake (main shock) in the same general region.

Alluvial fan – a cone-shaped deposit of stream sediments, generally deposited at the base of a mountain where a stream encounters flatter terrain.

Amplitude (seismic waves) – the maximum height of a wave crest or depth of a trough. The amount of ground moves as a seismic wave passes, as measured from a seismogram.

Avalanche path – the area in which a snow avalanche runs; generally divided into starting zone, track, and runout zone.

Basin and range physiographic province – consists of north-south-trending mountain ranges separated by valleys, bounded by the Rocky Mountains and the Colorado Plateau to the east and the Sierra–Cascade Mountains to the west (includes western Utah).

Bearing capacity – the load per unit area, which the ground can safely support without excessive yield.

Bedrock – solid in-place rock, sometimes exposed and sometimes concealed beneath the soil.

Block faulting – see normal fault.

Collapsible soil (hydrocompaction) – loose, dry, low-density soil that decreases in volume or collapses when saturated for the first time following deposition.

Critical areas – Environmentally sensitive areas, such as wetlands, fish and wildlife habitat conservation areas, geologically hazardous areas, areas with a critical recharging effect on aquifers used for potable water, and frequently flooded areas. Critical areas have measurable characteristics which, when combined, create a value for or risk to public health, safety, and welfare.

Critical/essential facilities – Structures meeting one or more of the following criteria:

- Fire stations, police stations, storage facilities for vehicles/equipment needed after a hazard event, and emergency operation centers.
- Hospitals, nursing homes, and housing which are likely to contain occupants who may not be sufficiently mobile to avoid injury or death as a result of a hazardous event.
- Public and private utility facilities, which are vital to maintaining or restoring normal services to damaged areas after a hazardous event.
- Structures or facilities that produce, store, or use highly flammable, explosive, volatile, toxic and/or water reactive materials.

Debris flow – involves the relatively rapid, viscous flow of surficial material that is predominantly coarse grained.

Debris slide – involves predominantly coarse-grained material moving mainly along a planar surface.

Drought (agricultural) – lack of water for crop production in a given area.

Drought (hydrologic) – lack of water in the entire water supply for a given area.

Drought (meteorological) – lack of precipitation compared with what is normal for an area.

Drought (socioeconomic) – lack of water sufficient to support an area's population.

Earth flow –involves fine-grained material that slumps away from the top or upper part of a slope, leaving a scarp, and flows down to form a bulging toe.

Earthquake – a sudden motion or trembling in the earth as fracture and movement of rocks along a fault release stored elastic energy.

Earthquake fault zone – earthquake fault zones are regulatory zones around active faults. These zones are used to prohibit the location of critical facilities and structures designed for human occupancy from being built astride an active fault. Earthquake fault zones are plotted on topographic maps at a scale of 1-inch equals 2,000 feet. The zones vary in width but average about one-quarter mile wide.

Earthquake-induced seiche – Earthquake-generated water waves causing inundation around shores or lakes and reservoirs.

Epicenter – the point on the earth's surface directly above the focus of an earthquake.

Epoch – geologic time unit lasting more than an age but shorter than a period (Epoch 2008).

Erosion – the removal of earth or rock material by many types of processes, for example, water, wind, or ice action.

Expansive soil and rock – soil and rock that contain clay minerals that expand and contract with changes in moisture content.

Fault – a break in the earth along which movement occurs.

Fault segment – section of a fault that behaves independently from adjacent sections.

Fault zone – an area containing numerous faults.

Federal Emergency Management Agency (FEMA) – authorized under Section 404 of the Stanford Act. Provides funding for hazard mitigation projects that are cost-effective and comply with existing post-disaster mitigation programs and activities. To be eligible, these projects cannot be funded through other programs.

Fill – material used to raise the surface of the land, generally in a low area.

Fire-resistant vegetation – plants that do not readily ignite and burn when subjected to fire because of inherent physiological characteristics of the species, such as moisture content, fuel loading, and fuel arrangement.

Floodplain – an area adjoining a body of water or natural stream that has been or may be covered by floodwater.

Floodplain (100-year/500-year) – An area that floods once every 100 or 500 years or that has a 1% (100-year) or 0.2% (500-year) chance of flooding equal to or in excess of that in a given year.

Floodway – An area of land immediately adjacent to a stream or river channel that, in times of flooding, becomes an enlarged stream or river channel and carries the floodwater with the highest velocity.

Fluvial – concerning or pertaining to rivers or streams.

Focus – the point of origin of an earthquake in the earth, and the origin of the earthquake's seismic waves.

Formation (geologic) – a mappable rock unit consisting of distinctive features/rock types separate from units above and below.

Frequency (seismic waves) – the number of complete cycles of a seismic wave passing a point during one second.

Fuel (fire) – vegetation, building material, debris, and other substances that will support combustion.

Fuel break – a change in fuel continuity, type of fuel, or degree of flammability of fuel in a strategically-located strip of land to reduce or hinder the rate of fire spread.

Fuel type – a category of vegetation used to indicate the predominant cover of an area.

Glacial moraine – debris (sand to boulders) transported and deposited by glacial ice along a glacier's sides or terminus.

Graben – a block of earth dropped between two faults.

Gradient (slope) – a measure of the slope of the land surface.

Ground failure – a general term referring to any type of ground cracking or subsidence, including landslides and liquefaction-induced cracks.

Ground shaking – the shaking or vibration of the ground during an earthquake.

Groundwater – that portion of subsurface water which is in the zone of saturation.

Gypsiferous deposits – soil or rock containing gypsum, which can be subject to dissolution.

Gypsum – a mineral composed of hydrated calcium sulfate. A common mineral of evaporites.

Hazard mitigation plan – The plan resulting from a systematic evaluation of the nature and extent of vulnerabilities posed by a hazard present in society that includes the strategies needed to minimize future vulnerability to hazards.

Hazard mitigation – Any action taken to reduce or permanently eliminate the long-term risk to human life, property, and the environment posed by a hazard.

HAZUS-MH – Hazards United States – Multi-hazards; Earthquake loss estimation software using GIS databases developed by FEMA.

Head (landslide) – the upper parts of the slide material along the contact between the disturbed material and the main scarp.

Holocene – geologic epoch covering the last 10,000 years (after the last Ice Age).

Igneous rocks – rocks formed by cooling and hardening hot liquid material (magma), including rocks cooled in the earth (for example, granite) and those that cooled at the ground surface as lavas (such as basalt).

Impermeable – materials having a texture that does not permit water to move through.

Interfluve – land between two streams in the same drainage basin (Interfluve 2004).

Intermountain seismic belt (ISB) – zone of pronounced seismicity, up to 120 miles wide and 800 miles long, extending from Arizona through central Utah to northwestern Montana.

Lacustrine – concerning or pertaining to lakes.

Lake Bonneville – a large, ancient lake that existed 30,000 to 12,000 years ago and covered nearly 20,000 square miles in Utah, Idaho, and Nevada. The lake covered many of Utah's valleys and was almost 1,000 feet deep in the area of the present Great Salt Lake.

Lake Bonneville sediments – sediments deposited by Lake Bonneville, which range from gravels and sands to clays.

Landslide – a general term for a mass of earth or rock, which moves down slope by flowing, spreading, sliding, toppling, or falling (see slope failure).

Lateral spread – lateral down slope displacement of soil layers, generally several feet or more, above a liquefied layer.

Levee (flood) – a berm or dike used to contain or direct water, usually without an outlet or spillway.

Liquefaction – sudden large decrease in shear strength of cohesionless soil (generally sand or silt) caused by collapse of soil structure and temporary increase in pore-water pressure during earthquake ground shaking.

Magnitude (earthquake) – a quantity characteristic of the amplitude of the ground motion of an earthquake. The most commonly used measurement is the Richter magnitude scale, a logarithmic scale based on the motion that would be measured by a standard type of seismograph 60 miles from the earthquake's epicenter.

Metamorphic rocks – rocks formed by high temperatures and/or pressures (for example, quartzite formed from sandstone).

Mitigation – the act of reducing or preventing hazards which affect society or those things deemed important to society

Modified Mercalli Intensity (MMI) – the most commonly used intensity scale in the U.S.; it is a measure of the severity of earthquake shaking at a particular site as determined from its effect on the earth's surface, man, and man's structures.

Montmorillonite – a clay mineral characterized by expansion upon wetting and shrinking upon drying.

Natural vegetation – native plant life existing on a piece of land before any form of development.

Normal fault (block faulting) – fault caused by crustal extension in which relative movement on opposite sides is primarily vertical; for example, the Wasatch Fault.

Oolite – spherical grains of carbonate sand with a brine shrimp fecal pellet nucleus.

Outlet (dam) – a conduit through which controlled releases can be made from the reservoir.

Palmer Drought Severity Index (PDSI) – developed by Wayne Palmer in 1965, measures drought severity using temperature, precipitation, and soil moisture (Utah Division of Water Resources 2007).

Peat – unconsolidated surficial deposit of partially decomposed plant remains.

Period (geologic) – a standard (worldwide) geologic time unit.

Permeability – the capacity of a porous rock or soil for transmitting a fluid.

Physiographic province – a region whose pattern of relief features or landforms differs significantly from that of adjacent regions.

Piping (problem soil and rock) – a weak incoherent layer in unconsolidated deposits that acts as a channel directing the movement of water. As the layer becomes saturated, it conducts water to a free face (cliff or stream bank, for example) that intersects the layer, and material exits out a "pipe" formed in the free face. Piping can occur in a dam as the result of the progressive development of internal erosion by seepage.

Pore space – the open spaces in a rock or soil between solid grains. The spaces may be filled with gas (usually air) or liquid (usually water).

Porosity – the ratio of the volume of pore space in rock or soil to the volume of its mass, expressed as a percentage.

Probable Maximum Flood (PMF) – a flood that would result from the most severe combination of critical meteorological and hydrologic conditions possible in a region.

Probable Maximum Precipitation (PMP) – the maximum amount and duration of precipitation that can be expected to occur on a drainage basin.

Problem Soil and Rock – geologic materials that are susceptible to volumetric changes, collapse, subsidence, or other engineering geologic problems.

Project Impact – An initiative of the Federal Emergency Management Agency intended to modify the way in which the United States handles natural disasters. The Goal of Project Impact from a Federal Government perspective is to reduce the personal and economic costs of hazard events by bringing together the private and public sectors to better enable the citizens of a community to protect themselves from natural hazards.

Quaternary – a geologic time period covering the last 1.6 million years.

Recurrence interval – the length of time between occurrences of a particular event (an earthquake, for example).

Rock fall – abrupt free fall or down slope movement, such as rolling or sliding, of loosened blocks or boulders from an area of bedrock. The rock-fall runout zone is the area below the source of a rock-fall that is at risk of falling rocks.

Rock topple – forward rotation movement of a rock unit(s) about some pivot point.

Runout zone (avalanche) – where a snow avalanche slows down and comes to rest (deposition zone). For large avalanches, the runout zone can include a powder- or wind-blast zone that extends far beyond the area of snow deposition.

Sand blow (earthquake) – deposit of sandy sediment ejected as water and sand to the surface, formed when ground shaking has caused liquefaction at depth.

Scarp – a steeper slope separating two gentler slopes. Scarps can form as a result of earthquake faults.

Sediment – material that is in suspension, is being transported, or has been moved from its site of origin by water, ice, or wind, and has come to rest on the earth's surface either above or below the sea level.

Sedimentary rocks – rocks formed from loose sediment, such as sand, mud, or gravel deposited by water, ice, or wind, and then hardened into rock (for example, sandstone); or formed by dissolved minerals precipitating out of solution to form rock (for example, tufa).

Seiche – a standing wave generated in a closed body of water, such as a lake or reservoir. Ground shaking, tectonic tilting, sub aqueous fault rupture, or landsliding into water can all generate a seiche.

Seismic waves – vibrations in the earth produced during earthquakes.

Seismicity – seismic or earthquake activity.

Sensitive clay – clay soil that experiences a particularly large loss of strength when disturbed. Deposits of sensitive clay are subject to failure during earthquake ground shaking.

Shear strength – the internal resistance that tends to prevent adjacent parts of a solid from "shearing" or sliding past one another parallel to the plane of contact. It is measured by the maximum shear stress that can be sustained without failure.

Shear stress – a stress causing adjacent parts of a solid to slide past one another parallel to the plane of contact.

Slope failure – a general term referring to any type of natural ground movement on a sloping surface (see landslide).

Slump – a slope failure that slides along a concave rupture surface. Generally, slumps do not move very far from the source area.

Snow avalanche – a rapid downslope movement of a mass of snow, ice, and debris.

Spectral acceleration – measurement for approximate horizontal force experienced in a model earthquake. Measurements are specific to the frequency of shaking found to affect buildings during an earthquake. A 0.2-second period affects primarily one- and two-story buildings, while a 1.0-second period of spectral acceleration affects buildings approximately 10 stories in height.

Stafford Act – Robert T. Stafford Disaster Relief and Emergency Assistance Act, PL 100-707, signed into law November 23, 1988: amended the Disaster Relief Act of 1974, PL 93-288.

Starting zone (avalanche) – where the unstable snow or ice breaks loose and starts to slide.

Subsidence – a settling or sinking of the earth's crust.

Sunny-day failure – the failure of a dam with the water level at the normal pool elevation and no rainfall.

Surface fault rupture (surface faulting) – propagation of an earthquake-generated fault rupture to the ground surface, displacing the surface and forming a scarp.

Tectonic subsidence – subsidence (down dropping) and tilting of a basin on the down dropped side of a fault during an earthquake.

Toe (landslide) – the margin of disturbed material most distant from the main scarp.

Track (avalanche) – the slope or channel down which a snow avalanche moves at a fairly uniform speed.

Unconsolidated basin fill – un-cemented and non-indurated sediment, chiefly clay, silt, sand, and gravel, deposited in basins.

Urban area – a geographical area, usually of incorporated land, covered predominately by engineered structures including homes, schools, commercial buildings, service facilities, and recreational facilities.

Velocity (ground motion) – the rate of displacement of an earth particle caused by the passage of a seismic wave.

Wasatch Fault – a normal fault that extends over 200 miles from Malad City, Idaho to Fayette, Utah, and trends along the western front of the Wasatch Range.

Watershed – the area of land above a reference point on a stream or river, which contributes runoff to that stream.

Weathering – a group of processes (such as the chemical action of air, rainwater, plants, and bacteria and the mechanical action of temperature changes) whereby rocks on exposure to the weather change in character, decay, and finally crumble into soil.

Wildfire – uncontrolled fire burning in vegetation.

Wildland area – a geographical area of unincorporated land covered predominately by natural vegetation.

Wildland–Urban Interface (WUI) – Wildland vegetation and forested areas adjacent to or intermingled with residential developments.

Zone of deformation (earthquake) – the width of the area of surface faulting over which earth materials have been disturbed by fault rupture, tilting, or subsidence.

Acronyms and Abbreviations

AARC	Average Annual Rate of Change
AGRC	Utah Automated Geographic Reference Center
APHIS	Animal and Plant Health Inspection Service
ArcGIS	Software program
BCEGS	Building Code Effectiveness Grading System
BEBB	Banded elm bark beetle
BLE	Base Level Engineering
BMSB	Brown Marmorated Stink Bug
BOR	Bureau of Reclamation
BRIC	Building Resilient Infrastructure and Communities
BWA	Balsam Wooly Adelgid
CDBG	Community Development Block Grant
CDC	Centers for Disease Control and Prevention
CEJST	Climate and Economic Justice Screening Tool
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CERT	Community Emergency Response Team
CFR	Code of Federal Regulations
cfs	cubic feet per second
CMAJ	Canadian Medical Association Journal
CMI	Crop Moisture Index
CRS	Community Rating System

CUP	Central Utah Project
CUWCD	Central Utah Water Conservancy District
CWPP	Community Wildfire Protection Plan
DB	Detention Basin
DED	Dutch Elm Disease
DEM	Division of Emergency Management
DFIRM	Digital Flood Insurance Rate Map
DMA 2000	Disaster Mitigation Act of 2000
DNR	Department of Natural Resources
EAL	Expected Annual Loss
EAP	Emergency Action Plan
EDRR	Early Detection Rapid Response
EEBB	European elm bark beetle
EM	Emergency Management
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
FEMA	Federal Emergency Management Agency
FFSL	Forestry, Fire and State Lands
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FMA	Flood Mitigation Assistance
FMAG	Fire Management Assistance Grant
G	Gravity
GIS	Geographic Information Systems

GOMB	Governor's Office of Management and Budget
GP	General Plan
GPS	Global Positioning System
GSL	Great Salt Lake
HAFB	Hill Air Force Base
HAM	Handheld Amateur Radio
HAZMAT	Hazardous Materials
HAZUS-MH	Hazards United States – Multi-Hazards
HHPD	High Hazard Potential Dam
HIFLD	Homeland Infrastructure Foundation-Level Data
HMA	Hazard Mitigation Assistance
HMGP	Hazard Mitigation Grant Program
IBC	International Building Code
IDER	Infectious Disease Emergency Response (Plan)
IFC	International Fire Code
ITS	intelligent transportation system
KBDI	Keetch-Byram Drought Index
LDS	Church of Jesus Christ of Latter Day Saints
LEPC	Local Emergency Planning Committee
LHMP	Local Hazard Mitigation Plan
LNO	Liaison Officer
LOMA	Letter of Map Amendment
LOMR	Letter of Map Revision
LUST	Leaking Underground Storage Tank

M	Magnitude
MOU	Memorandum of Understanding
MST	Mountain Standard Time
NCDC	National Climatic Data Center
NCEI	National Centers for Environmental Information
NFIP	National Flood Insurance Program
NFP	Natural Features Protection
NIMS	National Incident Management System
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NRI	National Risk Index
NWS	National Weather Service
OgdenCAN	Ogden Civic Action Network
PDM	Pre-Disaster Mitigation
PDSI	Palmer Drought Severity Index
PHDI	Palmer Hydrologic Drought Index
PHEP	Public Health Emergency Preparedness
piC/L	picoCuries per Liter
PL	Public Law
PSC	Public Safety Communications
RCRA	Resource Conservation and Recovery Act
RL	Repetitive Loss
SA	Spectral Acceleration
SBA	Small Business Administration

SFU	Simon Fraser University
SHELDUS	Spatial Hazard Events and Losses Database for the United States
SHMP	State Hazard Mitigation Plan
SLC	Salt Lake City
SNS	Strategic National Stockpile
SPI	Standardized Precipitation Index
SR	State Route
SRL	Severe Repetitive Loss
STAPLEE	Social, Technical, Administrative, Political, Legal, Economic, Environmental
SWSI	Surface Water Supply Index
TAZ	Transportation Analysis Zone
TCD	Thousand Cankers Disease
TRAX	Transit Express
TRI	Toxic Release Inventory
UCAN	Utah Communication Agency Networks
UDAF	Utah Department of Agriculture and Food
UDOT	Utah Department of Transportation
UEDV	Utah Economic Data Viewer
UFFSL	Utah Division of Forestry, Fire, and State Lands
UGRC	Utah Automated Geographic Reference Center
UGS	Utah Geological Service
UORG	Utah Outdoor and Recreation Grant
URM	unreinforced masonry
USACE	United States Army Corps of Engineers

USC	United States Code
USDA	United States Department of Agriculture
USFS	United States Forestry Service
USGS	United States Geological Survey
USU	Utah State University
UTA	Utah Transit Authority
UUSS	University of Utah Seismic Stations
VLB	Velvet Longhorned Beetle
VVH	Very Very High
VVL	Very Very Low
WACOG	Weber Area Council of Governments
WBGT	Wet Bulb Globe Temperature
WCT	Wind Chill Temperature
WFZ	Wasatch Fault Zone
WID	Water/Watershed Improvement District
WMHD	Weber–Morgan Health Department
WSSI	Winter Storm Severity Index
WUI	Wildland–Urban Interface

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Appendix C: References

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Appendix D: Public Survey Results

Appendix D: Public Survey Results

Weber County Pre-Disaster Mitigation Plan Public Survey

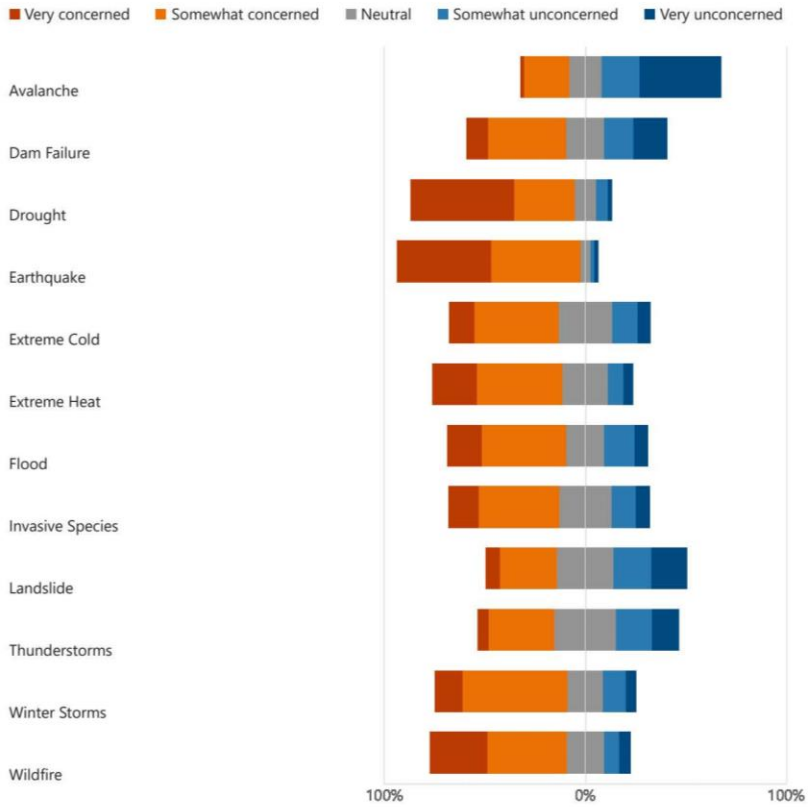
205 Responses | 13:40 Average time to complete | Active Status

1. How familiar are you with hazard mitigation?*
   **Hazard mitigation is any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards.*

Very familiar	26
Somewhat familiar	77
Not sure	33
Not really familiar	45
Not at all familiar	18



2. How concerned are you about the following natural hazards impacting your community?



3. What parts of your community (including buildings, people, economic activities and events, and natural areas) are most at risk to these hazards? Please be specific, if known.

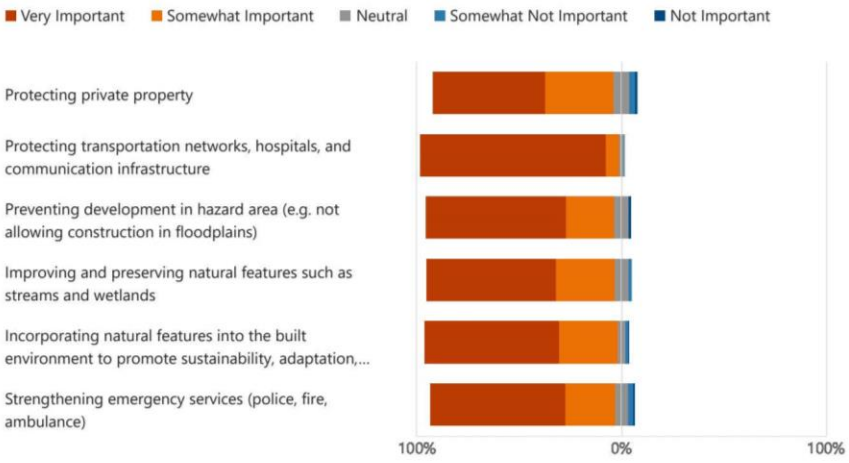
151
Responses

Latest Responses
"Housing, infrastructure, economy"

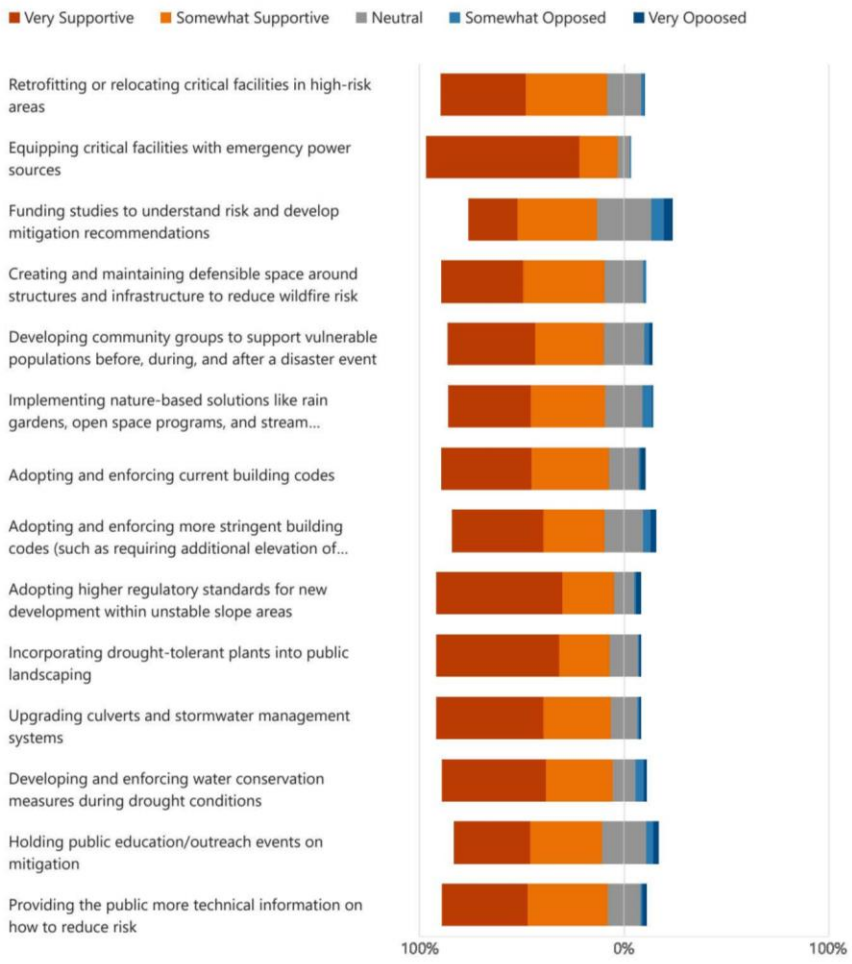
34 respondents (**23**%) answered **Homes** for this question.



4. Rate the importance of the following statements in determining community priorities for reducing risk from future disasters.



5. Please indicate how much you support the following types of community actions to reduce risk.



6. What other types of hazard mitigation activities would you support your community taking? Be specific if you know an area or structure which needs to be mitigated.

74
Responses

Latest Responses
"N/A"

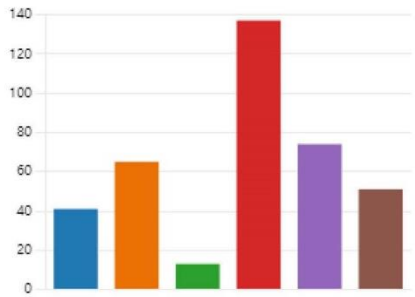
Update

9 respondents (**12**%) answered **water** for this question.



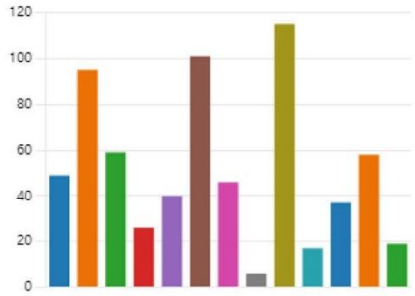
7. What insurance coverage for natural hazards do you have? This may be found in your home or renters insurance policy.

Flood insurance	41
Earthquake insurance	65
Landslide insurance	13
Fire insurance	137
Windstorm insurance	74
I do not have natural hazard ins...	51



8. How do you get information about the hazards that could impact your community and steps to reduce your risk? Check all that apply.

Newspaper	49
Television	95
Radio	59
Schools	26
Public workshops/meetings	40
Community groups, community ...	101
Direct mail	46
Magazines	6
Social media (Facebook, etc)	115
Digital advertising (pop-up ads)	17
Outdoor advertisements (billbo...	37
Text messages	58
Other	19



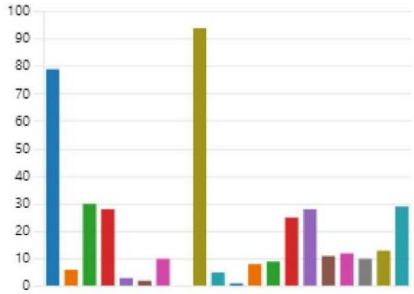
9. How would you rate the effectiveness of disaster-related public education and awareness activities in your community? Circle the answer.

I receive enough information on...	47
I receive enough information on...	27
I do not receive enough informa...	64
I do not receive enough informa...	58



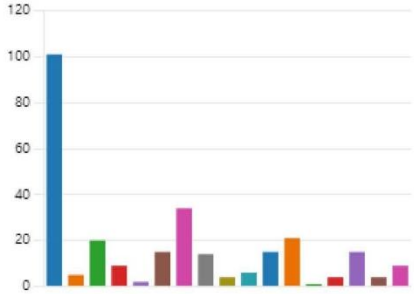
10. Which of the following statements applies to you? Check all that apply.

I am age 65 or older	79
I am age 18 or younger	6
I am a veteran	30
I have a disability	28
I primarily speak a language oth...	3
I am an immigrant	2
I am a single parent	10
I do not have stable housing	0
I am a woman	94
I am a person of color	5
I am a member of a tribe	1
I identify as LGBTQIA+	8
I represent a socially vulnerable ...	9
My income is less than $61,850 ...	25
My household income is less th...	28
My household income is less th...	11
My household income is less th...	12
My household income is less th...	10
I identify with one or more of th...	13
None of the above	29

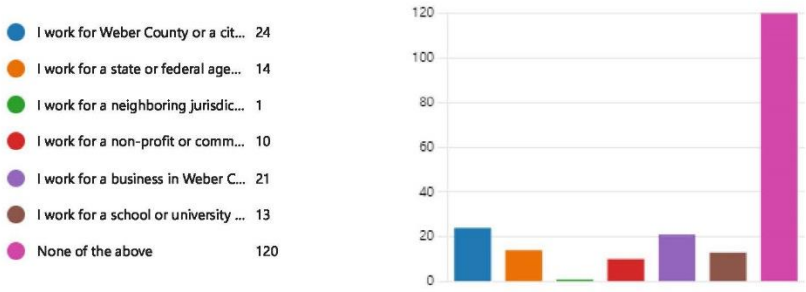


11. Where do you live?

Weber County	101
Farr West	5
Harrisville	20
Huntsville	9
Marriott-Slaterville	2
North Ogden	15
Ogden	34
Plain City	14
Pleasant View	4
Riverdale	6
Roy	15
South Ogden	21
Uintah	1
Washington Terrace	4
West Haven	15
Weber County (Unincorporated)	4
None of the above	9



12. Which of the following statements applies to your work?



13. Are you interested in learning more about hazard mitigation or participating in future projects? If so, please provide your email.

87
Responses

Latest Responses
"No"
"Rld1039@msn.com "

9 respondents (**10%**) answered **Yes** for this question.



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Appendix E: General Mitigation Strategies

Appendix E: General Mitigation Strategies

This appendix provides a general list of mitigation strategies that can be used with participating stakeholders to create a sense of understanding of mitigative actions and the types of projects that could aid in disaster mitigation. For the purpose of this plan, the mitigation strategies have been divided into the following six categories according to how they accomplish mitigation.

- Emergency Services
- Natural Resource Protection
- Prevention
- Property Protection
- Structural Protection
- Public Information and Involvement

Furthermore, plan participants should be encouraged to review the mitigation actions outlined in FEMA's Mitigation Ideas and select relevant actions for their community/organization, including those that support vulnerable populations.

EMERGENCY SERVICES

Emergency services mitigate bodily injury and the loss of life of humans during and after a disaster. Examples include:

- Establishing mutual aid agreements
- Protecting critical facilities
- Maintaining health and safety measures
- Inventorying assets
- Maintaining the skills of EMS, Police, and Fire personnel

NATURAL RESOURCE PROTECTION

Natural resource protection includes strategies to preserve or restore natural areas or the natural function that an area provides. Examples include:

- Protecting wetlands
- Reducing pollution
- Controlling erosion and sedimentation
- Reducing the use of fuel
- Maintaining watersheds

PREVENTION

Prevention measures are intended to keep problems from occurring and/or getting worse. Examples include:

- Developing and enforcing planning, zoning, and ordinance regulations
- Preserving open space
- Devising and enforcing regulations for development in or near floodplains and wetlands
- Developing stormwater management procedures
- Establishing minimum setback requirements
- Devising evacuation plans

PROPERTY PROTECTION

Property protection measures are used to modify residential and commercial property in high-risk areas in an attempt to reduce damage. For the most part, such measures do not affect a building's appearance or use, making them less expensive and particularly suitable for historical sites and landmarks. Examples include:

- Relocating utility apparatus
- Burying or flood proofing equipment, cables, etc.
- Devising structural and nonstructural earthquake mitigation
- Devising backup protections
- Implementing insurance and other actions to minimize financial loss
- Conducting technical evaluations and developing mapping

STRUCTURAL PROTECTION/PROJECTS

These are human-made structures which prevent damage from impacting property. Examples include:

- Detention/retention basins
- Larger culverts
- Elevated seismic design
- Floodwalls
- Debris basins
- Landslide stabilization methods and levees

PUBLIC INFORMATION AND INVOLVEMENT

Public information and involvement activities are intended to advise property owners, potential property owners, and visitors about the particular hazards associated with a property and ways to protect people and property from these hazards.

Outreach projects are proactive ways to give the public information even if they have not asked for it. They should be designed to encourage people to seek out more information and take steps to protect themselves and their properties. Examples include:

- Mass mailing or newsletters to all residents
- Notices directed to high-risk area residents
- Displays in public buildings
- Newspaper articles and special sections
- Radio and TV news releases and interviews
- Detailed property owners' handbooks tailored to local conditions
- Presentations at public meetings and neighborhood groups
- Workshops on specific hazards and how to prepare for them
- Establishing a public information portal so the public can search for information about hazards

There are many topics that the public might find useful for hazard mitigation, including the following:

- The National Flood Insurance Program (NFIP)
- Information and maps about hazard-prone areas
- Real estate insurance

Earthquake Mitigation

The following are common earthquake mitigation strategies pertaining to secondary threats often associated with earthquakes.

GENERIC GROUND SHAKING MITIGATION

- Understanding peak horizontal acceleration and recurrence intervals
- Designing structures appropriately
- Developing and enforcing zoning ordinances and building codes

GENERIC LIQUEFACTION MITIGATION

- Moving soil out
- Densifying soils in place
- Removing ground water
- Using appropriate structural design

GENERIC SURFACE FAULT RUPTURE MITIGATION

- Avoidance
- Developing and enforcing zoning ordinances
- Developing and enforcing earthquake-resistant building design codes
- Retrofitting critical facilities and deploying supporting equipment
- Retrofitting under-designed buildings
- Issuing annual warnings about risks and how to protect property and lives
- Seismically upgrading critical public facilities/utilities and shelters
- Gathering hazard and risk data/information
- Protecting roads and bridges
- Deploying infrastructure protection in general
- Developing improved mitigation techniques
- Educating local officials, developers, and citizens

EMERGENCY SERVICES

Emergency Operations Planning: Maintain an earthquake response plan to account for secondary problems, such as fire and hazardous material spills.

Critical Facilities Protection: Protecting critical facilities is vital, as the facilities are important for coordinating response and recovery following an earthquake. For this reason, vital facilities and facilities that could cause a secondary disaster if destroyed are listed below.

- Facilities or locations vital to earthquake response efforts
- Emergency operations centers
- Police and fire stations
- Hospitals
- Highway garages

- Selected roads and bridges
- Evacuation routes

Facilities and locations, which, if destroyed, would create a secondary disaster:

- Facilities housing hazardous materials
- Wastewater treatment plants
- Schools
- Nursing homes

NATURAL RESOURCE PROTECTION

- Designing pipelines
- Land use planning
- Developing and enforcing community master plans and zoning ordinances

PREVENTION

While earthquakes are not preventable, proper planning, zoning, and building codes can prevent much of the damage common to earthquakes. Planning, zoning, and building codes should address minimum set-backs, locations of critical faculties, steep slopes, and areas with liquefiable soils, and they should ensure a high factor of safety ratings for critical facilities.

Community master plans and zoning ordinances define hazard areas and require developers to show that existing hazards have been investigated and that new construction will not be exposed to unacceptable risk.

PROPERTY PROTECTION

Nonstructural Mitigation: These mitigation measures do not affect the overall look or purpose of the building yet prevent damage to no structural aspects and reduce the loss of life. In addition, buildings with non-structural mitigation are frequently usable after an event. Such measures include the following:

- Tie-downs
- Flexible utility connections
- Mylar film on windows to prevent the glass from shattering
- Added bracing

Retrofitting: Retrofitting upgrades the seismic safety of a building through structural and nonstructural mitigation techniques.

Insurance: Besides standard homeowners' insurance, homeowners can purchase coverage to protect against earthquake hazard, something not covered under most homeowner's insurance plans. Although this does not mitigate the problem, it does allow the homeowner to shift the financial loss/risk onto another party.

PUBLIC INFORMATION AND INVOLVEMENT

Public information and involvement about earthquakes might include the following additional measures:

Real Estate Disclosure: Disclosing information regarding earthquakes and hazard-prone properties is important if potential buyers are in a position to mitigate damage. Unlike floodplains, there are no federal laws that require disclosure of earthquakes.

Structural Protection/Projects: Mitigation measures can be any type of activity that reduces the likelihood or modifies what is at risk from the hazard. Earthquake mitigation can be accomplished through building codes that ensure safe and adequate construction, including earthquake-resistant designs and materials. Older buildings should be retrofitted to comply with codes.

Flood/Riverine Mitigation

The following are generic mitigation strategies appropriate for addressing the hazard of flooding. Many of these strategies are expanded upon in the text that follows.

- Employing avoidance, land use planning and zoning ordinances
- Improving flood routing through communities
- Issuing annual warnings about flooding risks and how to protect property and lives
- Promoting flood insurance awareness, emphasis, and marketing
- Undertaking projects such as levees and dams
- Funding efforts with a storm water tax, in cooperation with federal and state programs
- Developing additional SNOTEL (snow telemetry) sites and enhanced instrumentation
- Protecting roads and bridges
- Increasing reservoir capacity
- Curtailing development in flood-prone areas
- Deploying general infrastructure protection
- Developing river corridor parkways
- Protecting wastewater treatment facilities from excessive inflows
- Protecting drinking water supply systems
- Gathering hazard and risk data/information

- Developing improved mitigation techniques
- Educating local officials, developers, and citizens
- Protecting natural floodplain resources
- Employing good watershed management

EMERGENCY SERVICES

Flood Warnings: Warning systems are designed to alert residents of rising floodwaters. They can disseminate information through several means, such as sirens, radios, television, mobile public address systems, emergency notification systems, and door-to-door contact. Multiple or redundant warning systems are most effective, giving people more than one opportunity to be warned.

Flood Response: This refers to the actions to prevent or reduce damage once a flood starts. An example of flood response is turning Salt Lake City's State Street into a river during the 1983 flood event. Many of the actions listed below should be part of an Emergency Operations Plan (EOP) developed in coordination with the agencies that share responsibilities. The EOP, once developed, should be exercised and continually evaluated so that key players know what to do when the EOP is needed.

Flood response actions might include the following:

- Activating the emergency operations center
- Sandbagging designated areas
- Closing streets and bridges
- Shutting off power to threatened areas
- Taking protective action for children in schools
- Ordering an evacuation
- Opening evacuation shelters

Protecting Critical Facilities: Such protection is vital, yet it draws workers and resources away from protecting other parts of a town or county. For this reason, vital facilities and facilities that could cause a secondary disaster if destroyed are listed below. It is important to keep these locations in mind when considering potential mitigation projects.

Facilities or locations vital to flood response efforts:

- Emergency operations centers
- Police and fire stations
- Hospitals
- Highway garages

- Selected roads and bridges
- Evacuation routes

Facilities and locations which, if flooded would create a secondary disaster:

- Facilities housing hazardous materials
- Wastewater treatment plants
- Schools
- Nursing homes

Maintaining Health and Safety: Response to floods or other natural disasters should include measures to prevent damage to health and safety, such as the following:

- Patrolling evacuated areas to prevent looting
- Providing safe drinking water
- Vaccinating residents for tetanus
- Clearing streets
- Cleaning up debris

Many of these recommendations should be integrated into a public information program to educate citizens on the benefits of health and safety precautions.

NATURAL RESOURCE PROTECTION

Protecting Wetlands: Wetlands can store large amounts of floodwater, slowing and reducing downstream flows, and filtering the water. Any development proposed for a wetland is regulated by federal and/or state agencies. Mitigation techniques are often employed, which might consist of creating a wetland on another site to replace what would be lost through development. This is not an ideal practice since it takes many years for a new wetland to achieve the same level of quality as an existing one.

Controlling Erosion and Sedimentation: Controlling erosion and sediment runoff during construction and on farmland is important since eroded soil typically ends up in downstream waterways. Sediment tends to settle where the water flow is slower. It gradually fills in channels and lakes, reducing their ability to carry or store floodwaters. Sediment and erosion control have two principal components: minimizing erosion with vegetation and capturing sediment before it leaves the site. Slowing runoff increases infiltration into the soil, thereby controlling the loss of topsoil from erosion and the resulting sedimentation. Runoff and erosion control can be done through vegetation, terraces, contour strip farming, no-till farming practices, and impoundments.

PREVENTION MEASURES

Planning and Zoning: Land use plans are put in place to guide future development, recommending where development should or should not take place. Sensitive and vulnerable lands can be designated for uses that are compatible with occasional flood events. Zoning ordinances can regulate development in these sensitive areas by limiting or preventing development.

Preserving Open Space: Preserving open space is the best way to prevent flooding and flood damage. Open space preservation should not be limited to the floodplain. Other areas in the watershed may contribute to controlling the runoff that exacerbates flooding.

Regulating Floodplain Development: Floodplain development regulations typically do not prohibit development in special flood hazard areas, but they do impose construction standards on what is built there. The intent is to protect roads and structures from flood damage and to prevent the development from aggravating the potential for flooding. Floodplain development regulations are generally incorporated into subdivision regulations, building codes, and/or floodplain ordinances.

Subdivision Regulations: These regulations govern how land will be divided into separate lots or sites. In some Utah cities, these are known as Site Based Ordinances.

Building Codes: Standards can be incorporated into building codes that address flood proofing all new improved or repaired buildings.

Floodplain Ordinances: Communities that participate in the NFIP must adopt the minimum floodplain management regulations developed by FEMA. They set minimum standards for subdivision regulations and building codes. Communities may adopt more stringent standards than those set forth by FEMA.

Stormwater Management: Development outside a floodplain can contribute significantly to flooding by covering impervious surfaces, which increases stormwater runoff. Stormwater management is usually addressed in subdivision regulations. Developers are typically required to build retention or detention basins to minimize any increase in runoff caused by new or expanded impervious surfaces or new drainage systems. Most large cities and counties in Utah enforce an ordinance that prohibits stormwater from leaving a site at a rate higher than it did before the development.

Drainage System Maintenance: Ongoing maintenance of channel and detention basins is necessary if they are to function effectively and efficiently over time. A maintenance program should include regulations that prevent dumping in or altering watercourses or storage basins. Grading and filling also should be regulated.

PROPERTY PROTECTION

Relocation: Moving structures out of the floodplain is the surest and safest way to protect against damage. Relocation is expensive, so this approach is likely to be used only in extreme circumstances.

Acquisition: Acquisition by governmental entities of land in a floodplain serves two main purposes: it ensures that the problem structure is addressed, and it can convert problem areas into community assets.

Building Elevation: Elevating a building above the base flood elevation is the best on-site protection strategy. The building could be raised to allow water to run underneath it, or fill could be brought in to elevate the site on which the building sits.

Insurance: Besides standard homeowners' insurance, a homeowner can purchase other insurance to protect against flood hazard. Although this does not mitigate the problem, it does allow the homeowner to shift the financial loss/risk to another party. Two of the most common insurances offered against flood loss are the following:

- **National Flood Insurance:** When a community participates in the NFIP, any local insurance agent can sell separate flood insurance policies under the rules and rates set by FEMA. Rates do not change after claims are paid because they are set on a national basis.
- **Basement Backup Insurance:** National Flood Insurance Program offers an additional deductible for seepage and sewer backup, provided there is a general condition of flooding in the area that was the proximate cause of the basement getting wet.

PUBLIC INFORMATION AND INVOLVEMENT

Specific measures that can inform the public about flooding include the following:

Real Estate Disclosure: Disclosure of information regarding flood or hazard-prone properties is important if potential buyers are to be in a position to mitigate damage. Federally regulated lending institutions are required to advise applicants that a property is in the floodplain. However, this requirement needs to be met only five days prior to closing, and by that time, the applicant is typically committed to the purchase. This only includes flood prone areas, at the exclusion of other hazards.

Map Information: FEMA flood plain maps outline the boundaries of flood hazard areas. These maps can be used by anyone interested in a particular property to determine if it is in the floodplain. These maps are available from FEMA, the Utah Division of Emergency Management, and at many city and county planning offices. In addition, the Utah Geologic Survey creates and maintains maps illustrating geologic hazards. They are available for sale at the Division of Natural Resources bookstore.

STRUCTURAL PROJECTS

The intent behind structural projects for flood mitigation is to prevent floodwaters from reaching properties. The shortcomings of almost all structural mitigation projects are as follows:

- They can be very expensive.
- They disturb the land, disrupt natural water flows, and destroy natural habitats.
- They are built to an expected flood event and may be exceeded by a greater-than-expected flood.

- They can create a false sense of security.

Reservoirs: Reservoirs control flooding by holding water behind dams or in storage basins. After a flood peaks, water is released or pumped out slowly at a rate the rivers downstream can handle. Reservoirs are expensive to build, occupy large tracts of land, require maintenance, and, if they fail, often cause greater downstream flooding than would occur during a natural flooding event.

Levees and Floodwalls: Some of the best-known structural flood control measures, levees and floodwalls are earthen, steel, or concrete structures placed between the watercourse and the land.

Diversions: A diversion is simply a new channel that sends floodwaters to a different location, thereby reducing flooding along an existing watercourse. Diversion structures can consist of surface channels, overflow weirs, or tunnels. During normal flows, the water stays in the old channel, but during flooding events, floodwaters spill over into the diversion channel.

Channel Modifications: Channel modifications include making a channel wider, deeper, smoother, or straighter. Common channel modifications include:

- **Dredging:** Dredging is often cost-prohibitive because the dredged material must be disposed of somewhere else, and dredged streams usually fill in again with sediment.
- **Drainage Modifications:** These include human-made ditches and storm sewers that help drain areas where the surface drainage system is inadequate or where underground drainage methods may be safer or more attractive.

Stormwater Management: Mitigation techniques for managing stormwater include installing stormwater systems, improving streets, and enlarging pipes in existing stormwater systems.

Landslide Mitigation

GENERIC MITIGATION

- Avoidance
- Recognizing landslide areas
- Developing and enforcing zoning ordinances
- Removing landslide materials
- Draining subsurface materials
- Installing surface drains
- Removing materials at the head of the landslide
- Re-grading
- Building a buttress or retaining wall at the toe of the slope

- Installing soil nails and rock anchors
- Maintaining natural vegetation
- Improving geologic mapping to identify potential landslide problems
- Developing zoning ordinances that prohibit construction in or adjacent to areas with high landslide potential
- Installing soil moisture sensors at SNOTEL sites
- Gathering hazard and risk data/information
- Protecting roads and bridges
- Developing improved mitigation techniques
- Educating local officials, developers, and citizens
- Protecting drinking water supply systems
- Developing generic rock fall mitigation
- Stabilizing rocks
- Prerelease
- Building berms or benches
- Building structures to stop rocks

EMERGENCY SERVICES

- Warning systems
- Identifying hazards and areas at risk

PREVENTION

- Developing and enforcing land use planning ordinances
- Identifying previous landslide locations
  - Old landslides often have irregular or subdued hill-like topography.
  - Younger or more recent landslides have hummocky terrain, scarps, inclined trees, cracks in the ground cracks, sharp differences in old landslides, and many depressions or ponds.
- Identifying unstable slopes
- Identifying areas that could be affected by slope failures
  - Rock falls can occur at steep cliff areas or where bedrock crops out onto mountain slopes.

PROPERTY PROTECTION

- Developing and enforcing good land use practices
- Avoiding slope-irrigation, undercutting, and over-steepening

STRUCTURAL PROTECTION/PROJECTS

- Properly assessing slope conditions
- Grading or removing material from the top and placing it at the toe of a slope to reduce the gradient
- Employ subsurface drainage control to dewater and stabilize slopes
- Building retaining structures (concrete block walls or large masses of compacted earth)
- Constructing debris basins
- Building deflection walls upslope of structures
- Avoiding ground-level windows that face upslope
- Installing catchment fences, tieback walls, and rock bolts
- Cutting benches and berms

PUBLIC INFORMATION AND INVOLVEMENT

- Deploying multiple communications systems
- Conducting proper property assessments of slope conditions

Wildfire Mitigation

GENERAL WILDFIRE MITIGATION STRATEGIES

- Avoidance
- Defining, creating, and maintaining defensible space
- Planting drought and fire-resistant vegetation
- Developing and enforcing ordinances
- Modifying fuel loading in high-hazard interface areas
- Conducting wildland fire training and providing experience for fire department personnel
- Conducting public education efforts for people living in the Wildland–Urban Interface (WUI)
- Providing additional suppression equipment for fire departments and the Utah Division of Forestry, Fire, and State Lands

- Fuel modification in moderate hazard interface areas
- Protecting roads and bridges
- Issuing annual warnings about wildfire risks and how to protect property and lives
- Gathering hazard and risk data/information
- Providing general infrastructure protection
- Developing improved mitigation techniques
- Educating local officials, developers, and citizens
- Protecting drinking water supply systems

EMERGENCY SERVICES

- Fire fighting

NATURAL RESOURCE PROTECTION

- Prohibiting development in high-risk areas
- Controlling vegetation

PREVENTION

- Developing and enforcing zoning ordinances for fire risk zones
- Developing planning and zoning restrictions for areas near fire protection and water resources
- Requiring new subdivisions to space buildings, widen roads, and provide firebreaks, on-site water storage, and multiple accesses
- Developing and enforcing building standards for roof materials and spark arrestors
- Employing maintenance programs to clear dead and dry bush trees
- Developing and enforcing regulations on open fires

PROPERTY PROTECTION

- Retrofitting roofs and adding spark arrestors
- Landscaping to keep bushes and trees away from structures
- Establishing insurance rates based on distance from fire protection
- Planning how to deal with fires in the WUI before they occur
- Ensuring good visibility

STRUCTURAL PROTECTION/PROJECTS

- Building and property assessments
- Using appropriate construction materials
- Providing adequate access to buildings

PUBLIC INFORMATION AND INVOLVEMENT

- Educating homeowners and future homeowners in wildfire-prone areas about risk
- Planning how to deal with fires in the WUI before they occur
- Deploying emergency warning systems and developing action plans
- Deploying a communication tree between fire departments and homeowners
- Developing community action plans for wildfires
- Providing for adequate water supply and systems

Problem Soils Mitigation

GENERAL PROBLEM SOIL MITIGATION

- Avoidance
- Presoaking and compacting problem soils
- Removing problem soil
- Landscaping so runoff moves away from foundations

NATURAL RESOURCE PROTECTION

- Increasing awareness of soil types

PREVENTION

- Landscaping with vegetation that does not concentrate or draw large amounts of water from the soil near foundations
- Insulating floors or walls near heating or cooling units to prevent evaporation that could cause local changes in soil moisture
- Avoiding areas underlain by limestone and dolomite to prevent groundwater contamination and foundation problems in karst terrain
- Using soil tests to find gypsum and not using plants that need a lot of water near houses

- Reduce piping damage by limiting construction that disturbs natural drainage
- Removing or avoiding peat deposits at construction sites
- Avoiding abandoned mine areas
- Noting that sands and calcareous loamy soils are highly erodible

PROPERTY PROTECTION

- Special foundation designs
- Installing gutters and downspouts that direct water at least 10 feet away from foundation slabs
- Landscaping with vegetation that does not concentrate or draw large amounts of water from the soil near foundations

STRUCTURAL PROTECTION

- Special foundation designs
- Installing gutters and downspouts
- Ensuring proper drainage along roads and around structures

PUBLIC INFORMATION AND INVOLVEMENT

- Establishing a public information portal so the public can search for information about soil risk in the area

Dam Failure Mitigation

GENERAL DAM FAILURE MITIGATION

- Developing proper floodplain maps, including dam breach flood potential
- Disseminating knowledge of floodplains to the general public and emergency managers
- Aligning Emergency Operation Plans (EOPs) with GIS systems
- Maintaining proper floodplain/wetland geometry and vegetation for flood routing
- Ensuring that floodplain use is compatible with floodplain needs
- Building more debris dams to help control flooding, debris, and mud
- Developing a flood control pool at existing dams
- Protecting roads and bridges
- Deploying general infrastructure protection

- Increasing authority to help with snowmelt floods and runoff releases
- Providing better forecasting
- Gathering hazard and risk data/information
- Developing improved mitigation techniques
- Educating local officials, developers, and citizens

EMERGENCY SERVICES

- Devising good emergency management and emergency action plans
- Monitoring dam conditions
- Devising and deploying warning systems
- Understanding standard operating procedures

NATURAL RESOURCE PROTECTION

- Developing and enforcing zoning of downstream use
- Conducting regular risk assessments
- Ensuring good watershed management

PREVENTION

- Developing dam failure inundation maps
- Using planning and zoning to prepare open space to keep downstream areas clear
- Developing and enforcing building codes with flood elevations based on dam failure
- Conducting regular dam safety inspections
- Draining reservoirs when conditions appear unsafe

PROPERTY PROTECTION

- Acquiring buildings in the path of a dam breach flood
- Considering flood insurance

STRUCTURAL PROTECTION/PROJECTS

- Dam improvements
- Spillway enlargements
- Removing unsafe dams

- Reviewing designs and construction
- Providing direction to consulting engineers
- Installing methods for monitoring dams
- Conducting remedial repairs
- Assessing incremental damage

PUBLIC INFORMATION AND INVOLVEMENT

- Communicating with and educating dam owners
- Communicating with and educating the public
  - Explaining evacuation procedures

Drought Mitigation

EMERGENCY SERVICES

- Providing low-interest loans or private assistance for farmers and ranchers

NATURAL RESOURCE PROTECTION

- Managing wildlife during drought periods
- Incorporating wildfire hazard mitigation planning
- Integrating financial assistance for transportation or water hauling for livestock

PREVENTION

- Implementing cloud seeding during drought years to enhance precipitation
- Protecting culinary water systems and/or providing culinary water to people or systems
- Incorporating a drought management plan
- Introducing more water resources, such as wells, ponds, and reservoirs
- Increasing reservoir capacity

PUBLIC INFORMATION AND INVOLVEMENT

- Creating or joining water conservation programs that are designed to reduce water consumption
- Incorporating a drought management plan
- Coordinating the use of resources during droughts

Severe Weather Mitigation

EMERGENCY SERVICES

- Early warning systems
- Communications systems

PREVENTION

- Developing and enforcing building standards for light frame construction
- Devising ordinances that include weather-resistant designs

STRUCTURAL PROTECTION/PROJECTS

- Strengthening unreinforced masonry

PUBLIC INFORMATION AND INVOLVEMENT

- Encouraging the use of weather radios
- Watching and listening to weather forecasts and warnings
- Developing a plan so the public knows where to find shelter
- Understanding risk and identifying ways to reduce its impacts

Appendix F: Hazard Vulnerability Analyses

Appendix F: Hazard Vulnerability Analyses

As part of this plan update, all participating jurisdictions were asked to complete Hazard Vulnerability Analyses (HVAs) to determine the specific hazards their jurisdiction or district was most likely to face in the next five years. The modality used was the Kaiser Permanente HVA, which includes a number of factors to consider and a list of hazards that were ranked in order from most-likely to occur and most-impactful to least-likely to occur and least impactful. The following tables list data from the HVAs completed during the plan update.

The ranking of data was based on the following:

Probability	Human Impact	Property Impact	Business Impact	X Factor	Internal Preparedness	External Response	Risk	Rank
Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, Training, Education, Equipment…	Community Readiness	Relative threat*	Highest to Lowest
0 = N/A *1 = Low* *2 = Moderate* *3 = High*	*0 = N/A* *1 = Low* *2 = Moderate* *3 = High*	*0 = N/A* *1 = Low* *2 = Moderate* *3 = High*	*0 = N/A* *1 = Low* *2 = Moderate* *3 = High*	*0 = N/A* *1 = Low* *2 = Moderate* *3 = High*	*0 = N/A* *1 = Low* *2 = Moderate* *3 = High*	*0 = N/A* *1 = Low* *2 = Moderate* *3 = High*	*0 - 100%*	1 = Highest Concern

City of Harrisville – Natural Events									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Winter Storm (blizzard, big hail, ice rain, low temp)	3.0	2.0	2.0	2.0	3.0	2.0	3.0	**78%**	**5**
Tornado >F3 (Fujita scale 158–206 mph)	1.0	2.0	3.0	3.0	3.0	3.0	3.0	**31%**	**8**
High Winds < F3 (Fujita scale 40–157 mph)	3.0	2.0	2.0	2.0	3.0	2.0	2.0	**72%**	**6**
Severe Heat / Extended Drought	3.0	2.0	3.0	3.0	3.0	2.0	2.0	**83%**	**3**
Earthquake >5.0	3.0	3.0	3.0	3.0	3.0	2.0	3.0	**94%**	**1**
Liquefaction	3.0	3.0	3.0	3.0	3.0	2.0	2.0	**89%**	**2**
Flood (heavy rain, snow melt, dam inundation)	3.0	2.0	2.0	2.0	2.0	1.0	2.0	**61%**	**7**
Wildfire	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**11**
Landslide	1.0	1.0	1.0	1.0	1.0	3.0	3.0	**19%**	**9**
Avalanche	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**11**
Lightning Thunderstorm >T3 (10-20 within 5 minutes)	3.0	2.0	2.0	2.0	2.0	3.0	3.0	**78%**	**5**
Average	**2.09**	**1.73**	**1.91**	**1.91**	**2.09**	**1.82**	**2.09**	**45%**	
		Risk = Probability * Severity							
		0.45	**0.70**	**0.64**					

City of Harrisville – Infrastructure Failures									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Electrical Power Failure >72 hrs.	2.0	2.0	2.0	3.0	2.0	2.0	3.0	**52%**	**5**
Fuel Shortage >72 hrs.	2.0	1.0	2.0	3.0	2.0	2.0	3.0	**48%**	**7**
Natural Gas Disruption >72 hrs.	2.0	3.0	1.0	3.0	2.0	3.0	3.0	**56%**	**3**
Water System Disruption >3 hrs.	3.0	1.0	1.0	2.0	2.0	2.0	3.0	**61%**	**1**
Sewer System Failure >3 hrs.	1.0	1.0	3.0	3.0	2.0	1.0	3.0	**24%**	**11**
Steam/Boiler Failure	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**14**
HVAC System Failure >3 hrs.	2.0	2.0	2.0	2.0	2.0	2.0	2.0	**44%**	**8**
Smoke/Fire Alarm System Failure >3 hrs.	1.0	3.0	3.0	3.0	2.0	3.0	3.0	**31%**	**10**
Fire Sprinkler Line Disruption	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**14**
Elevator Disruption >3 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**14**
Internal Flooding	2.0	2.0	3.0	3.0	3.0	2.0	3.0	**59%**	**2**
Backup Generator Failure >3 hrs.	1.0	1.0	1.0	2.0	2.0	1.0	2.0	**17%**	**12**
Food Service Disruption >72 hrs.	2.0	2.0	1.0	3.0	2.0	3.0	3.0	**52%**	**5**
Computer/Server System Disruption >3 hrs.	2.0	1.0	2.0	2.0	2.0	2.0	2.0	**41%**	**9**
Communications (phone, PBX, cell service) >3 hrs.	2.0	2.0	2.0	3.0	3.0	1.0	3.0	**52%**	**5**
Average	**1.47**	**1.40**	**1.53**	**2.13**	**1.73**	**1.60**	**2.20**	**29%**	
		Risk = Probability * Severity							
		0.29	**0.49**	**0.59**					

City of Harrisville – Human-Related Incidents (accidental or intentional)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
MCI Trauma Transportation (Highway or Rail) Accident	1.0	3.0	3.0	3.0	3.0	2.0	3.0	**24%**	**14**
Mass Fatality Transportation (Air Travel) Accident	1.0	3.0	3.0	3.0	3.0	3.0	3.0	**33%**	**10**
MCI Trauma Active Shooter/Lone Wolf Terrorist	2.0	3.0	2.0	3.0	3.0	2.0	3.0	**59%**	**4**
MCI Blast Trauma / Terrorist	1.0	3.0	3.0	3.0	3.0	2.0	3.0	**31%**	**11**
Bomb Threat/Suspicious Package	2.0	3.0	3.0	3.0	3.0	2.0	3.0	**63%**	**3**
High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	1.0	3.0	2.0	1.0	2.0	1.0	2.0	**17%**	**15**
Large External Structure Fire	2.0	2.0	3.0	3.0	2.0	1.0	3.0	**52%**	**6**
Large Internal Structure Fire	2.0	2.0	3.0	3.0	2.0	1.0	3.0	**52%**	**6**
Hostage Situation	1.0	3.0	2.0	2.0	2.0	1.0	3.0	**24%**	**14**
Civil Unrest/Disturbance	1.0	2.0	3.0	3.0	3.0	2.0	3.0	**30%**	**12**
Labor Action/Staff Shortage	2.0	1.0	1.0	2.0	2.0	1.0	3.0	**37%**	**9**
Ransomware /Data Breach /Cyber Security	3.0	1.0	2.0	2.0	3.0	1.0	3.0	**67%**	**2**
Armed Robbery	2.0	3.0	2.0	3.0	2.0	1.0	3.0	**52%**	**6**
Armed Assault (Targeted/Gang Violence)	2.0	2.0	2.0	2.0	2.0	2.0	3.0	**48%**	**8**
Unarmed Assault (Workplace Violence)	3.0	3.0	1.0	2.0	2.0	1.0	3.0	**67%**	**2**
Average	**1.73**	**2.47**	**2.33**	**2.53**	**2.47**	**1.53**	**2.93**	**46%**	
		Risk = Probability * Severity							
		0.46	**0.58**	**0.79**					

City of Harrisville – Hazardous Materials

Event	Probability	Human Impact	Property Impact	Business Impact	X Factor	Internal Preparedness	External Response	Risk	Rank
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Large External Spill	2.0	2.0	2.0	2.0	2.0	2.0	2.0	**44%**	**3**
Diesel Spill	2.0	2.0	2.0	2.0	2.0	2.0	2.0	**44%**	**3**
Propane	2.0	2.0	2.0	2.0	2.0	2.0	2.0	**44%**	**3**
Natural Gas	2.0	2.0	2.0	2.0	2.0	2.0	2.0	**44%**	**3**
Average	**2.00**	**2.00**	**2.00**	**2.00**	**2.00**	**2.00**	**2.00**	**44%**	

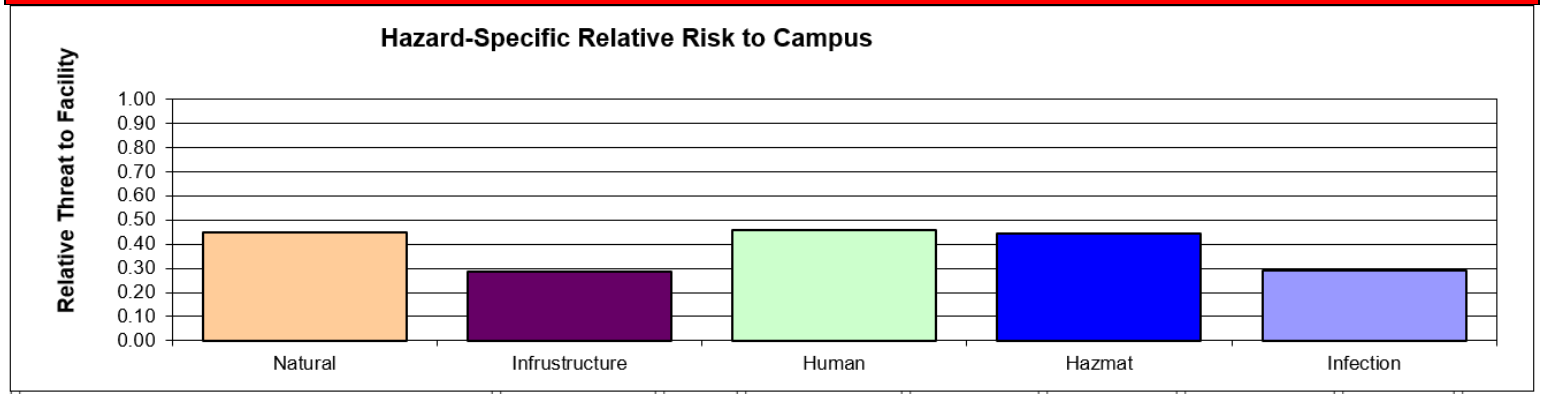
Risk = Probability * Severity

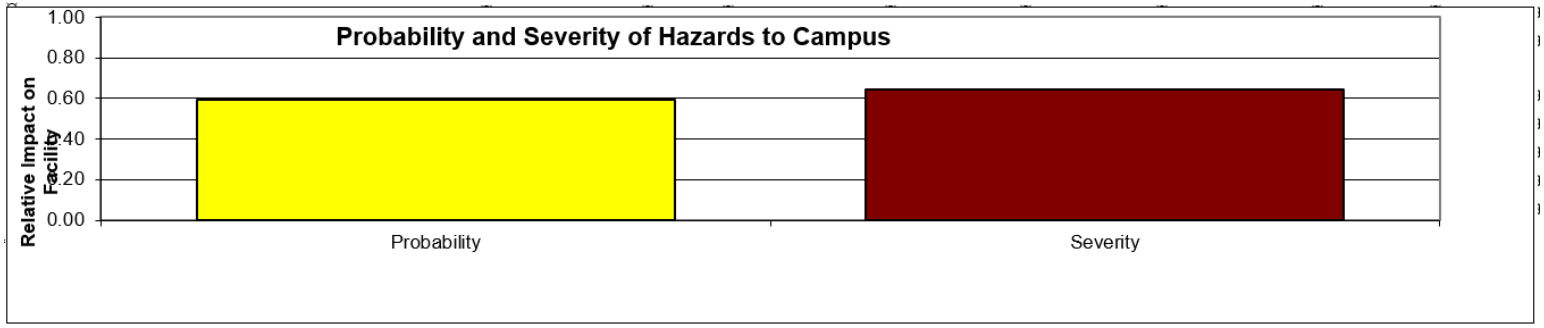
0.44 **0.67** **0.67**

City of Harrisville – Infectious Disease Outbreak (Epidemic/Pandemic)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
Level 2 – Affecting >20% of staff	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Influenza	3.0	2.0	1.0	2.0	2.0	1.0	1.0	**50%**	**1**
Ebola, Hanta, & Hemorrhagic Fevers	1.0	2.0	1.0	1.0	1.0	2.0	3.0	**19%**	**6**
SARS (zoological illnesses)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	**33%**	**4**
Tuberculosis (TB)	1.0	2.0	1.0	1.0	1.0	1.0	1.0	**13%**	**8**
Blood Borne Illness; (HIV, AIDS, Hepatitis)	2.0	2.0	1.0	2.0	2.0	1.0	3.0	**41%**	**3**
Novel, MERS or unidentified illness	1.0	2.0	1.0	2.0	2.0	1.0	3.0	**20%**	**5**
MRSA, ESBL, and VRE	1.0	2.0	1.0	1.0	1.0	1.0	3.0	**17%**	**7**
Norovirus or other food borne illness	2.0	2.0	1.0	2.0	2.0	1.0	3.0	**41%**	**3**
Average	**1.63**	**2.00**	**1.00**	**1.63**	**1.63**	**1.13**	**2.25**	**29%**	
		Risk = Probability * Severity							
		0.29	**0.54**	**0.53**					

City of Harrisville – Summary of Facility Hazards Analysis

	Natural	Infra-structure	Human	Hazmat	Infection	Total for Area
Probability	**0.70**	**0.49**	**0.58**	**0.67**	**0.54**	**0.59**
Severity	**0.64**	**0.59**	**0.79**	**0.67**	**0.53**	**0.64**
Hazard-Specific Relative Risk:	**0.45**	**0.29**	**0.46**	**0.44**	**0.29**	**0.38**





City of Harrisville – Synopsis			
Event		**Risk**	**Rank**
Natural Events	Winter Storm (blizzard, big hail, ice rain, low temp)	78%	4.5
	Tornado >F3 (Fujita scale 158–206mph)	31%	36
	High Winds < F3 (Fujita scale 40–157mph)	72%	6
	Severe Heat / Extended Drought	83%	3
	Earthquake >5.0	94%	1
	Liquefaction	89%	2
	Flood (heavy rain, snow melt, dam inundation)	61%	10.5
	Wildfire	0%	51
	Landslide	19%	43.5
	Avalanche	0%	51
	Lightning Thunderstorm >T3 (10–20 within 5 minutes)	78%	4.5
Infrastructure Failure	Electrical Power Failure >72 hrs.	52%	17.5
	Fuel Shortage >72 hrs.	48%	22.5
	Natural Gas Disruption >72 hrs.	56%	14
	Water System Disruption >3 hrs.	61%	10.5
	Sewer System Failure >3 hrs.	24%	40
	Steam/Boiler Failure	0%	51
	HVAC System Failure >3 hrs.	44%	26
	Smoke/Fire Alarm System Failure >3 hrs.	31%	36
	Fire Sprinkler Line Disruption	0%	51
	Elevator Disruption >3 hrs.	0%	51
	Internal Flooding	59%	12.5
	Backup Generator Failure >3 hrs.	17%	46
	Food Service Disruption >72 hrs.	52%	17.5
	Computer/Server System Disruption >3 hrs.	41%	28
	Communications (phone, PBX, cell service) >3 hrs.	52%	15.5

City of Harrisville – Synopsis			
Event		**Risk**	**Rank**
Human Incidents	MCI Trauma Transportation (Highway or Rail) Accident	24%	40
	Mass Fatality Transportation (Air Travel) Accident	33%	33.5
	MCI Trauma Active Shooter/Lone Wolf Terrorist	59%	12.5
	MCI Blast Trauma / Terrorist	31%	36
	Bomb Threat/Suspicious Package	63%	9
	High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	17%	46
	Large External Structure Fire	52%	17.5
	Large Internal Structure Fire	52%	17.5
	Hostage Situation	24%	40
	Civil Unrest/Disturbance	30%	38
	Labor Action/Staff Shortage	37%	32
	Ransomware /Data Breach /Cyber Security	67%	7.5
	Armed Robbery	52%	17.5
	Armed Assault (Targeted/Gang Violence)	48%	22.5
	Unarmed Assault (Workplace Violence)	67%	7.5
HAZMAT	Large External Spill	44%	26
	Diesel Spill	44%	26
	Propane	44%	26
	Natural Gas	44%	26
Infectious Disease Outbreak	Influenza	50%	21
	Ebola, Hanta, & Hemorrhagic Fevers	19%	43.5
	SARS (zoological illnesses)	33%	33.5
	Tuberculosis (TB)	13%	48
	Blood Borne Illness; (HIV, AIDS, Hepatitis)	41%	30
	Novel, MERS or unidentified illness	20%	42
	MRSA, ESBL, and VRE	17%	46
	Norovirus or other food borne illness	41%	30

City of Harrisville – Top Risk						
%	**Rank**	**Risk**	**Mitigation** Any activities that actually eliminate or reduce the occurrence of a disaster. It may also include long-term activities that reduce the effects of unavoidable disasters.	**Preparedness** Preparedness activities are necessary to the extent that mitigation measures have not or cannot prevent disasters.	**Response** Actions that are designed to provide emergency assistance for casualties. Seek to reduce the possibility of secondary damage and speed recovery.	**Recovery** Continue until all systems return to normal. Short-term returns vital life support to minimum operating standards. The long term may continue for a number of years after a disaster.
94%	1	Earthquake >5.0	Fasten shelves/bookcase/ files, Heavy objects away from beds, Flammable products and Hazardous chemicals should be stored away from heat sources and in tightly secured containers.	Annual Staff Training with Community and State resources "Great Utah Shakeout"	Keep calm, Activate EOP plan, Conserve resources.	When Utility Service can be returned to normal. Work with community, city, county, state, federal, and corporate directives in the COOP plan
89%	2	Liquefaction	Fasten shelves/bookcase/ files, Heavy objects away from beds, Flammable products and Hazardous chemicals should be stored away from heat sources and in tightly secured containers.	Annual Staff Training with Community and State resources "Great Utah Shakeout"	Keep calm, Activate EOP plan, Conserve resources.	When Utility Service can be returned to normal. Work with community, city, county, state, federal, and corporate directives in the COOP plan
83%	3	Severe Heat/ Extended Drought	Make every drop count. Encourage the use of water-saving devices. Xeriscaping. Water recycling. Develop a drought response plan	Conserving water, using the state water wise methods, incentivizing use of low water use yards.	Have water reduction goals. Water use restrictions. Identify where water demand can be reduced.	When Utility Service can be returned to normal. Work with community, city, county, state, federal, and corporate directives in COOP plan. Revise drought plan to keep effective goals and eliminate any that did not work.
78%	4	Winter Storm (Blizzard, big hail, ice rain, low temp)	Encourage insulation of homes and businesses. Create emergency kits for cars and homes.	Have winter storm plans in place to address when there is heavy snow including public works. Work with community partners to have plans for how to deal with issues arising from the storm, such as power outages and excess snow.	Activate community plans. Work with community partners to address the highest need areas. Support departments that are assisting in clearing snow policing roads.	When Utility Service can be returned to normal. Work with community, city, county, state, federal, and corporate directives in COOP plan
City of Marriott–Slaterville – Natural Events						

Event	Probability	Human Impact	Property Impact	Business Impact	X Factor	Internal Preparedness	External Response	Risk	Rank
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Winter Storm (blizzard, big hail, ice rain, low temp)	2.0	1.0	1.0	1.0	1.0	2.0	2.0	**30%**	**3**
Tornado >F3 (Fujita scale 158–206 mph)	1.0	0.0	0.0	0.0	0.0	0.0	1.0	**2%**	**8**
High Winds < F3 (Fujita scale 40–157 mph)	1.0	1.0	2.0	1.0	1.0	1.0	2.0	**15%**	**7**
Severe Heat / Extended Drought	2.0	2.0	1.0	1.0	1.0	2.0	2.0	**33%**	**2**
Earthquake >5.0	1.0	2.0	2.0	2.0	1.0	2.0	2.0	**20%**	**4**
Liquefaction	1.0	2.0	2.0	2.0	1.0	2.0	1.0	**19%**	**5**
Flood (heavy rain, snow melt, dam inundation)	2.0	2.0	3.0	2.0	1.0	3.0	2.0	**48%**	**1**
Wildfire	1.0	1.0	1.0	1.0	0.0	3.0	2.0	**15%**	**7**
Landslide	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**10**
Avalanche	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**10**
Lightning Thunderstorm >T3 (10-20 within 5 minutes)	1.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**10**
Average	**1.09**	**1.00**	**1.09**	**0.91**	**0.55**	**1.36**	**1.27**	**12%**	
		Risk = Probability * Severity							
		0.12	**0.36**	**0.34**					

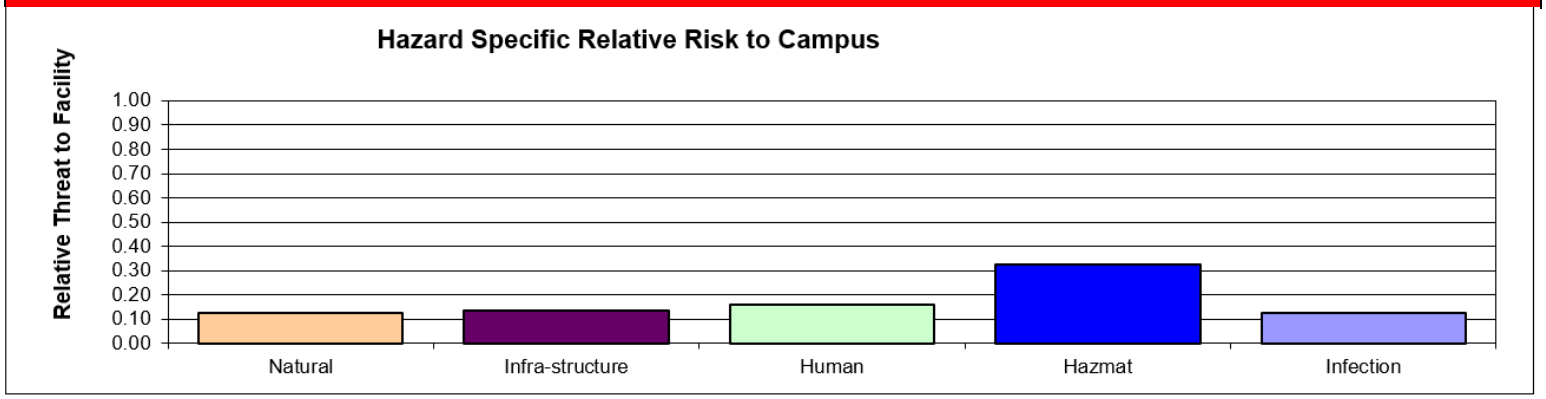
City of Marriott–Slaterville – Infrastructure Failure									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Electrical Power Failure >72 hrs.	1.0	1.0	1.0	2.0	1.0	1.0	2.0	**15%**	**2**
Fuel Shortage >72 hrs.	1.0	1.0	1.0	1.0	1.0	1.0	2.0	**13%**	**10**
Natural Gas Disruption >72 hrs.	1.0	1.0	1.0	1.0	1.0	1.0	2.0	**13%**	**10**
Water System Disruption >3 hrs.	1.0	1.0	1.0	1.0	1.0	1.0	2.0	**13%**	**10**
Sewer System Failure >3 hrs.	1.0	1.0	1.0	1.0	1.0	1.0	2.0	**13%**	**10**
Steam/Boiler Failure	1.0	1.0	1.0	1.0	1.0	1.0	2.0	**13%**	**10**
HVAC System Failure >3 hrs.	1.0	1.0	1.0	1.0	1.0	1.0	2.0	**13%**	**10**
Smoke/Fire Alarm System Failure >3 hrs.	1.0	1.0	1.0	1.0	1.0	1.0	2.0	**13%**	**10**
Fire Sprinkler Line Disruption	1.0	1.0	1.0	1.0	1.0	1.0	2.0	**13%**	**10**
Elevator Disruption >3 hrs.	1.0	1.0	1.0	1.0	1.0	1.0	2.0	**13%**	**10**
Internal Flooding	1.0	1.0	1.0	1.0	1.0	2.0	2.0	**15%**	**2**
Backup Generator Failure >3 hrs.	1.0	1.0	1.0	1.0	1.0	1.0	2.0	**13%**	**10**
Food Service Disruption >72 hrs.	1.0	1.0	1.0	1.0	1.0	1.0	2.0	**13%**	**9**
Computer/Server System Disruption >3 hrs.	1.0	1.0	1.0	1.0	1.0	2.0	2.0	**15%**	**2**
Communications (phone, PBX, cell service) >3 hrs.	1.0	1.0	1.0	1.0	1.0	1.0	2.0	**13%**	**11**
Average	**1.00**	**1.00**	**1.00**	**1.07**	**1.00**	**1.13**	**2.00**	**13%**	
		Risk = Probability * Severity							
		0.13	**0.33**	**0.40**					

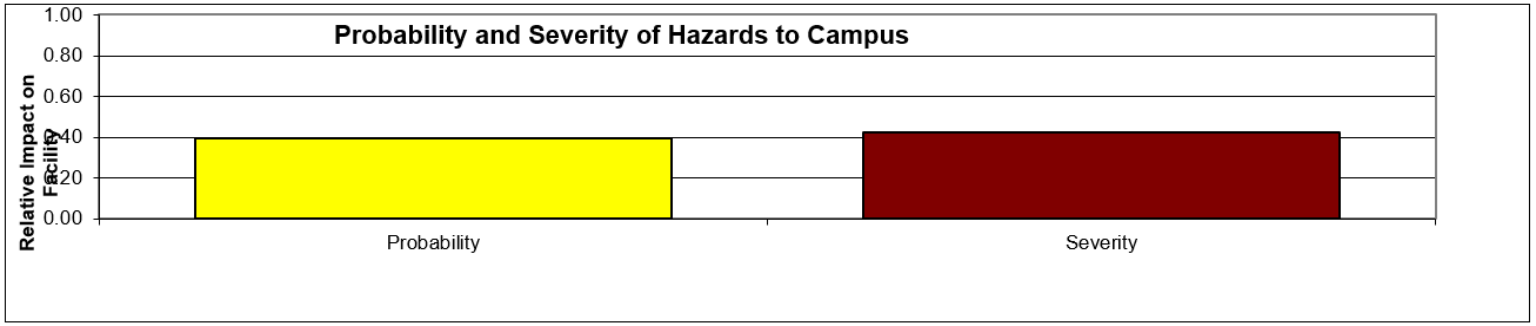
City of Marriott–Slaterville – Human-Related Incidents (accidental or intentional)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
MCI Trauma Transportation (Highway or Rail) Accident	1.0	1.0	2.0	2.0	1.0	1.0	2.0	**13%**	**14**
Mass Fatality Transportation (Air Travel) Accident	1.0	1.0	2.0	2.0	1.0	1.0	2.0	**17%**	**6**
MCI Trauma Active Shooter/Lone Wolf Terrorist	1.0	1.0	2.0	2.0	1.0	1.0	2.0	**17%**	**6**
MCI Blast Trauma / Terrorist	1.0	1.0	2.0	2.0	1.0	1.0	2.0	**17%**	**6**
Bomb Threat/Suspicious Package	1.0	1.0	2.0	2.0	1.0	1.0	2.0	**17%**	**6**
High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	1.0	1.0	2.0	0.0	1.0	1.0	2.0	**9%**	**15**
Large External Structure Fire	1.0	1.0	2.0	1.0	1.0	1.0	2.0	**15%**	**12**
Large Internal Structure Fire	1.0	1.0	2.0	2.0	1.0	1.0	2.0	**17%**	**6**
Hostage Situation	1.0	1.0	1.0	2.0	1.0	1.0	2.0	**15%**	**12**
Civil Unrest/Disturbance	1.0	1.0	2.0	2.0	1.0	1.0	2.0	**17%**	**6**
Labor Action/Staff Shortage	1.0	1.0	2.0	2.0	1.0	1.0	2.0	**17%**	**6**
Ransomware /Data Breach /Cyber Security	1.0	1.0	2.0	2.0	1.0	1.0	2.0	**17%**	**6**
Armed Robbery	1.0	1.0	2.0	2.0	1.0	1.0	2.0	**17%**	**6**
Armed Assault (Targeted/Gang Violence)	1.0	1.0	2.0	2.0	1.0	1.0	2.0	**17%**	**6**
Unarmed Assault (Workplace Violence)	1.0	1.0	2.0	1.0	1.0	1.0	2.0	**15%**	**12**
Average	**1.00**	**1.00**	**1.93**	**1.73**	**1.00**	**1.00**	**2.00**	**16%**	
		Risk = Probability * Severity							
		0.16	**0.33**	**0.48**					

City of Marriott–Slaterville – Hazardous Materials									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Large External Spill	2.0	2.0	2.0	2.0	1.0	1.0	2.0	**37%**	**2**
Diesel Spill	2.0	2.0	2.0	2.0	1.0	1.0	2.0	**37%**	**2**
Propane	1.0	2.0	2.0	2.0	1.0	1.0	2.0	**19%**	**4**
Natural Gas	2.0	2.0	2.0	2.0	1.0	1.0	2.0	**37%**	**2**
Average	**1.75**	**2.00**	**2.00**	**2.00**	**1.00**	**1.00**	**2.00**	**32%**	
		Risk = Probability * Severity							
		0.32	**0.58**	**0.56**					

City of Marriott–Slaterville – Infectious Disease Outbreak (Epidemic/Pandemic)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
Level 2 – Affecting >20% of staff	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Influenza	2.0	1.0	1.0	2.0	1.0	1.0	1.0	**26%**	**1**
Ebola, Hanta, & Hemorrhagic Fevers	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**5**
SARS (zoological illnesses)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**5**
Tuberculosis (TB)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**5**
Blood Borne Illness; (HIV, AIDS, Hepatitis)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**5**
Novel, MERS or unidentified illness	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**5**
MRSA, ESBL, and VRE	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**5**
Norovirus or other food borne illness	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**5**
Average	**1.13**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**13%**	
		Risk = Probability * Severity							
		0.13	**0.38**	**0.34**					

City of Marriott–Slaterville – Summary of Facility Hazards Analysis						
	Natural	Infra-struc-ture	Human	Hazmat	Infection	Total for Area
Probability	**0.36**	**0.33**	**0.33**	**0.58**	**0.38**	**0.40**
Severity	**0.34**	**0.40**	**0.48**	**0.56**	**0.34**	**0.42**
Hazard-Specific Relative Risk:	**0.12**	**0.13**	**0.16**	**0.32**	**0.13**	**0.17**





City of Marriott–Slaterville – Synopsis			
Event		**Risk**	**Rank**
Natural Events	Winter Storm (blizzard, big hail, ice rain, low temp)	30%	6
	Tornado >F3 (Fujita scale 158–206mph)	2%	50
	High Winds < F3 (Fujita scale 40–157mph)	15%	24.5
	Severe Heat / Extended Drought	33%	5
	Earthquake >5.0	20%	8
	Liquefaction	19%	9.5
	Flood (heavy rain, snow melt, dam inundation)	48%	1
	Wildfire	15%	24.5
	Landslide	0%	52
	Avalanche	0%	52
	Lightning Thunderstorm >T3 (10–20 within 5 minutes)	0%	52
Infrastructure Failure	Electrical Power Failure >72 hrs.	15%	24.5
	Fuel Shortage >72 hrs.	13%	35
	Natural Gas Disruption >72 hrs.	13%	35
	Water System Disruption >3 hrs.	13%	35
	Sewer System Failure >3 hrs.	13%	35
	Steam/Boiler Failure	13%	35
	HVAC System Failure >3 hrs.	13%	35
	Smoke/Fire Alarm System Failure >3 hrs.	13%	35
	Fire Sprinkler Line Disruption	13%	35
	Elevator Disruption >3 hrs.	13%	35
	Internal Flooding	15%	24.5
	Backup Generator Failure >3 hrs.	13%	35
	Food Service Disruption >72 hrs.	13%	35
	Computer/Server System Disruption >3 hrs.	15%	23
	Communications (phone, PBX, cell service) >3 hrs.	13%	33

City of Marriott–Slaterville – Synopsis			
Event		**Risk**	**Rank**
Human Incidents	MCI Trauma Transportation (Highway or Rail) Accident	13%	35
	Mass Fatality Transportation (Air Travel) Accident	17%	15.5
	MCI Trauma Active Shooter/Lone Wolf Terrorist	17%	15.5
	MCI Blast Trauma / Terrorist	17%	15.5
	Bomb Threat/Suspicious Package	17%	15.5
	High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	9%	49
	Large External Structure Fire	15%	24.5
	Large Internal Structure Fire	17%	15.5
	Hostage Situation	15%	24.5
	Civil Unrest/Disturbance	17%	15.5
	Labor Action/Staff Shortage	17%	15.5
	Ransomware /Data Breach /Cyber Security	17%	15.5
	Armed Robbery	17%	15.5
	Armed Assault (Targeted/Gang Violence)	17%	15.5
	Unarmed Assault (Workplace Violence)	15%	24.5
HAZMAT	Large External Spill	37%	3
	Diesel Spill	37%	3
	Propane	19%	9.5
	Natural Gas	37%	3
Infectious Disease Outbreak	Influenza	26%	7
	Ebola, Hanta, & Hemorrhagic Fevers	11%	45
	SARS (zoological illnesses)	11%	45
	Tuberculosis (TB)	11%	45
	Blood Borne Illness; (HIV, AIDS, Hepatitis)	11%	45
	Novel, MERS or unidentified illness	11%	45
	MRSA, ESBL, and VRE	11%	45
	Norovirus or other food borne illness	11%	45

City of Marriott–Slaterville – Top Risk						
%	**Rank**	**Risk**	**Mitigation** Any activities that actually eliminate or reduce the occurrence of a disaster. It may also include long-term activities that reduce the effects of unavoidable disasters.	**Preparedness** Preparedness activities are necessary to the extent that mitigation measures have not or cannot prevent disasters.	**Response** Actions that are designed to provide emergency assistance for casualties. Seek to reduce the possibility of secondary damage and speed recovery.	**Recovery** Continue until all systems return to normal. Short-term returns vital life support to minimum operating standards. The long term may continue for a number of years after a disaster.
89%	1	Earthquake >5.0	Fasten shelves/bookcase/ files, Heavy objects away from beds, Flammable products and Hazardous chemicals should be stored away from heat sources and in tightly secured containers.	Annual Staff Training with Community and State resources "Great Utah Shakeout"	Keep calm, protect patients, Activate EOP plan, Conserve resources.	When Utility Service can be returned to normal. Work with community, city, county, state, federal, and corporate directives in COOP plan
83%	2	MCI Blast Trauma / Terrorist				
78%	3	Liquefaction				
78%	4	MCI Trauma Active Shooter/ Lone Wolf Terrorist				
72%	5	Unarmed Assault (Workplace Violence)				

City of North Ogden – Natural Events									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Winter Storm (blizzard, big hail, ice rain, low temp)	3.0	1.0	2.0	2.0	1.0	1.0	1.0	**44%**	**3**
Tornado >F3 (Fujita scale 158–206 mph)	1.0	1.0	1.0	1.0	0.0	0.0	0.0	**6%**	**11**
High Winds < F3 (Fujita scale 40–157 mph)	3.0	1.0	2.0	1.0	1.0	1.0	1.0	**39%**	**4**
Severe Heat / Extended Drought	3.0	1.0	1.0	1.0	0.0	1.0	1.0	**28%**	**7**
Earthquake >5.0	3.0	3.0	3.0	3.0	3.0	1.0	1.0	**78%**	**1**
Liquefaction	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**10**
Flood (heavy rain, snow melt, dam inundation)	2.0	1.0	2.0	2.0	2.0	1.0	1.0	**33%**	**6**
Wildfire	2.0	1.0	2.0	2.0	2.0	1.0	1.0	**33%**	**6**
Landslide	3.0	3.0	3.0	3.0	2.0	1.0	1.0	**72%**	**2**
Avalanche	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**10**
Lightning Thunderstorm >T3 (10-20 within 5 minutes)	2.0	1.0	1.0	1.0	1.0	1.0	1.0	**22%**	**8**
Average	**2.18**	**1.36**	**1.73**	**1.64**	**1.27**	**0.91**	**0.91**	**32%**	
		Risk = Probability * Severity							
		0.32	**0.73**	**0.43**					

City of North Ogden – Infrastructure Failures									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Electrical Power Failure >72 hrs.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**10**
Fuel Shortage >72 hrs.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**10**
Natural Gas Disruption >72 hrs.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**10**
Water System Disruption >3 hrs.	2.0	1.0	2.0	2.0	2.0	1.0	1.0	**33%**	**4**
Sewer System Failure >3 hrs.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**10**
Steam/Boiler Failure	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**14**
HVAC System Failure >3 hrs.	2.0	1.0	1.0	1.0	2.0	1.0	1.0	**26%**	**5**
Smoke/Fire Alarm System Failure >3 hrs.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**10**
Fire Sprinkler Line Disruption	1.0	1.0	3.0	3.0	1.0	1.0	1.0	**19%**	**6**
Elevator Disruption >3 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**14**
Internal Flooding	1.0	1.0	2.0	1.0	1.0	1.0	2.0	**15%**	**7**
Backup Generator Failure >3 hrs.	3.0	2.0	1.0	2.0	2.0	1.0	1.0	**50%**	**2**
Food Service Disruption >72 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**13**
Computer/Server System Disruption >3 hrs.	3.0	1.0	1.0	3.0	2.0	2.0	2.0	**61%**	**1**
Communications (phone, PBX, cell service) >3 hrs.	2.0	3.0	2.0	2.0	1.0	1.0	1.0	**37%**	**3**
Average	**1.27**	**1.00**	**1.13**	**1.27**	**1.07**	**0.87**	**0.93**	**15%**	
		Risk = Probability * Severity							
		0.15	**0.42**	**0.35**					

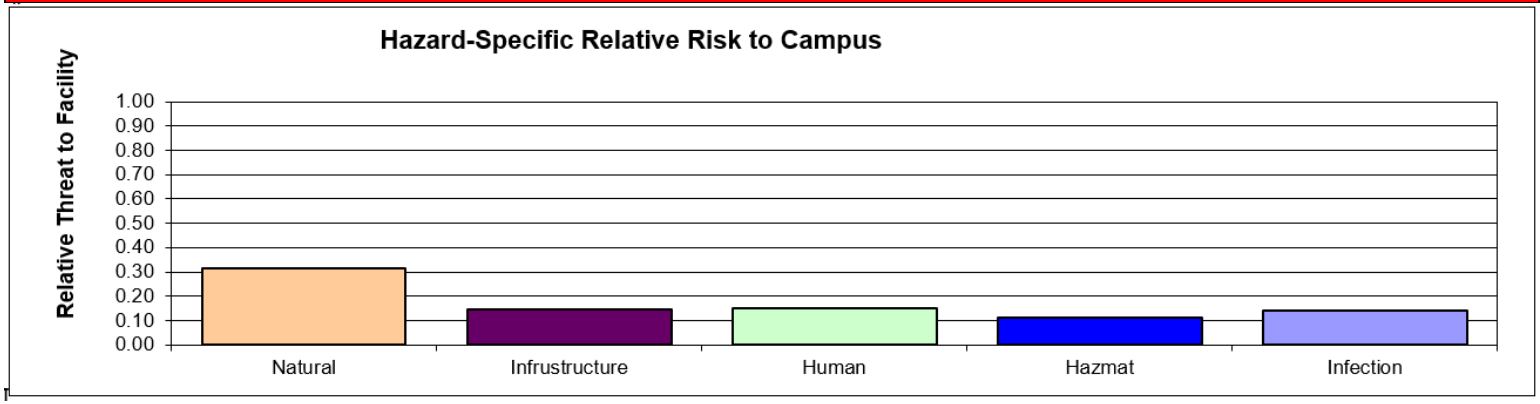
City of North Ogden – Human-Related Incidents (accidental or intentional)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
MCI Trauma Transportation (Highway or Rail) Accident	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**7%**	**14**
Mass Fatality Transportation (Air Travel) Accident	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**15**
MCI Trauma Active Shooter/Lone Wolf Terrorist	1.0	3.0	1.0	1.0	3.0	2.0	2.0	**22%**	**3**
MCI Blast Trauma / Terrorist	1.0	1.0	1.0	1.0	1.0	3.0	3.0	**19%**	**5**
Bomb Threat/Suspicious Package	1.0	1.0	1.0	1.0	1.0	3.0	3.0	**19%**	**5**
High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	1.0	1.0	1.0	1.0	1.0	2.0	2.0	**7%**	**14**
Large External Structure Fire	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**9**
Large Internal Structure Fire	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**9**
Hostage Situation	2.0	3.0	1.0	1.0	2.0	1.0	1.0	**33%**	**2**
Civil Unrest/Disturbance	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**9**
Labor Action/Staff Shortage	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**9**
Ransomware /Data Breach /Cyber Security	3.0	1.0	3.0	3.0	2.0	1.0	1.0	**61%**	**1**
Armed Robbery	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**9**
Armed Assault (Targeted/Gang Violence)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**9**
Unarmed Assault (Workplace Violence)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**9**
Average	**1.13**	**1.20**	**1.07**	**1.07**	**1.20**	**1.33**	**1.33**	**15%**	
		Risk = Probability * Severity							
		0.15	**0.38**	**0.40**					

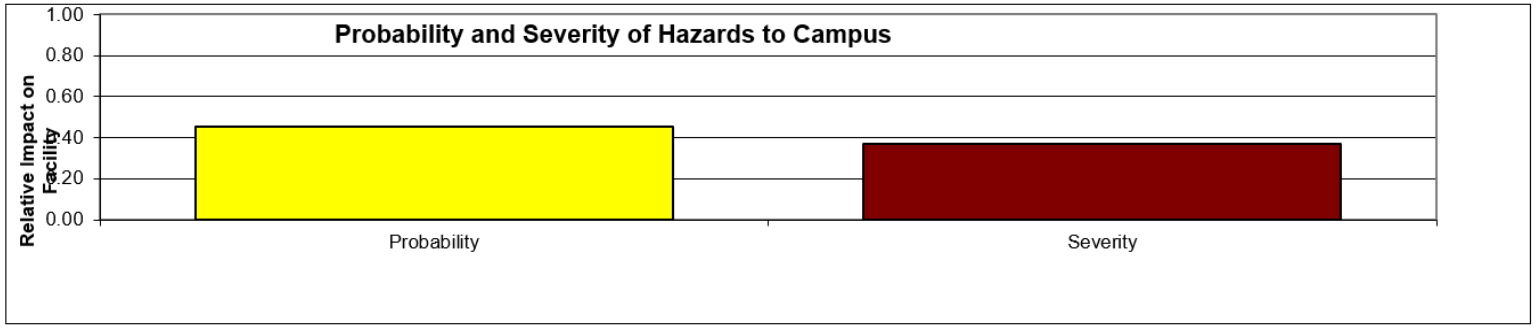
City of North Ogden – Hazardous Materials									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Large External Spill	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**3**
Diesel Spill	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**3**
Propane	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**3**
Natural Gas	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**3**
Average	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**11%**	
		Risk = Probability * Severity							
		0.11	**0.33**	**0.33**					

City of North Ogden – Infectious Disease Outbreak (Epidemic/Pandemic)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
Level 2 – Affecting >20% of staff	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Influenza	2.0	1.0	1.0	1.0	1.0	1.0	1.0	**22%**	
Ebola, Hanta, & Hemorrhagic Fevers	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	
SARS (zoological illnesses)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	
Tuberculosis (TB)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	
Blood Borne Illness; (HIV, AIDS, Hepatitis)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	
Novel, MERS or unidentified illness	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	
MRSA, ESBL, and VRE	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	
Norovirus or other food borne illness	2.0	1.0	1.0	1.0	1.0	1.0	1.0	**22%**	
Average	**1.25**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**14%**	
		Risk = Probability * Severity							
		0.14	**0.42**	**0.33**					

City of North Ogden – Summary of Facility Hazards Analysis

	Natural	Infra-structure	Human	Hazmat	Infection	Total for Area
Probability	**0.73**	**0.42**	**0.38**	**0.33**	**0.42**	**0.46**
Severity	**0.43**	**0.35**	**0.40**	**0.33**	**0.33**	**0.37**
Hazard-Specific Relative Risk:	**0.32**	**0.15**	**0.15**	**0.11**	**0.14**	**0.17**





City of North Ogden – Synopsis			
Event		**Risk**	**Rank**
Natural Events	Winter Storm (blizzard, big hail, ice rain, low temp)	44%	6
	Tornado >F3 (Fujita scale 158–206mph)	6%	49
	High Winds < F3 (Fujita scale 40–157mph)	39%	7
	Severe Heat / Extended Drought	28%	13
	Earthquake >5.0	78%	1
	Liquefaction	11%	34.5
	Flood (heavy rain, snow melt, dam inundation)	33%	10.5
	Wildfire	33%	10.5
	Landslide	72%	2
	Avalanche	11%	34.5
	Lightning Thunderstorm >T3 (10–20 within 5 minutes)	22%	16.5
Infrastructure Failure	Electrical Power Failure >72 hrs.	11%	34.5
	Fuel Shortage >72 hrs.	11%	34.5
	Natural Gas Disruption >72 hrs.	11%	34.5
	Water System Disruption >3 hrs.	33%	10.5
	Sewer System Failure >3 hrs.	11%	34.5
	Steam/Boiler Failure	0%	51.5
	HVAC System Failure >3 hrs.	26%	14
	Smoke/Fire Alarm System Failure >3 hrs.	11%	34.5
	Fire Sprinkler Line Disruption	19%	20
	Elevator Disruption >3 hrs.	0%	51.5
	Internal Flooding	15%	22
	Backup Generator Failure >3 hrs.	50%	5
	Food Service Disruption >72 hrs.	0%	51.5
	Computer/Server System Disruption >3 hrs.	61%	3.5
	Communications (phone, PBX, cell service) >3 hrs.	37%	6

City of North Ogden – Synopsis			
Event		**Risk**	**Rank**
Human Incidents	MCI Trauma Transportation (Highway or Rail) Accident	7%	47.5
	Mass Fatality Transportation (Air Travel) Accident	0%	51.5
	MCI Trauma Active Shooter/Lone Wolf Terrorist	22%	16.5
	MCI Blast Trauma / Terrorist	19%	20
	Bomb Threat/Suspicious Package	19%	20
	High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	7%	47.5
	Large External Structure Fire	11%	34.5
	Large Internal Structure Fire	11%	34.5
	Hostage Situation	33%	10.5
	Civil Unrest/Disturbance	11%	34.5
	Labor Action/Staff Shortage	11%	34.5
	Ransomware /Data Breach /Cyber Security	61%	3.5
	Armed Robbery	11%	34.5
	Armed Assault (Targeted/Gang Violence)	11%	34.5
	Unarmed Assault (Workplace Violence)	11%	34.5
HAZMAT	Large External Spill	11%	34.5
	Diesel Spill	11%	34.5
	Propane	11%	34.5
	Natural Gas	11%	34.5
Infectious Disease Outbreak	Influenza	22%	16.5
	Ebola, Hanta, & Hemorrhagic Fevers	11%	34.5
	SARS (zoological illnesses)	11%	34.5
	Tuberculosis (TB)	11%	34.5
	Blood Borne Illness; (HIV, AIDS, Hepatitis)	11%	34.5
	Novel, MERS or unidentified illness	11%	34.5
	MRSA, ESBL, and VRE	11%	34.5
	Norovirus or other food borne illness	22%	16.5

City of North Ogden – Top Risk						
%	**Rank**	**Risk**	**Mitigation** Any activities that actually eliminate or reduce the occurrence of a disaster. It may also include long-term activities that reduce the effects of unavoidable disasters.	**Preparedness** Preparedness activities are necessary to the extent that mitigation measures have not or cannot prevent disasters.	**Response** Actions that are designed to provide emergency assistance for casualties. Seek to reduce the possibility of secondary damage and speed recovery.	**Recovery** Continue until all systems return to normal. Short-term returns vital life support to minimum operating standards. The long term may continue for a number of years after a disaster.
78%	1	Earthquake > 5.0	Fasten shelves/bookcases/files, Heavy Objects away from beds, Flammable products and Hazardous chemicals should be stored away from heat sources and in tightly secured containers	Annual Staff Training with Community and State Resources "Great Utah Shakeout"	Keep calm, protect patients, Activate EOP plan, Conserve resources	When Utility Service can be returned to normal. Work with Community, City, County, State, Federal and Corporate directives in COOP plan
72%	2	Landslide	Clear channels and drainage areas to allow travel of water and prevent elusive flooding	Staff training to monitor and clear channel grates. Mapping all stormwater grates in City GIS.	Activate City EOC, Clear access points for Emergency Vehicles, identify shelters for displaced residents	Work with City, County and State resources to restore access to properties and records where necessary
61%	3.5	Computer/Server System Disruption >3 hrs.	Yearly mandatory training on computer security. Limit number of people with access to sensitive drives	Backup computers with access to basic needed functions for operation. Allow remote work for necessary employees to continue daily operations	Activate IT technician to diagnose and repair any faulty/damaged hardware	Return to normal operations as soon as possible. Using remote work when needed
61%	3.5	Ransomware/Data Breach/Cyber Security	Yearly mandatory training on computer security. Limit number of people with access to sensitive drives	Allow remote work from home through cloud based technology. Keep physical copies of critical records in safe location	Activate IT. Assign critical employees to work remotely. Activate EOC if necessary	Return to normal operations as soon as possible. Continue using remote work when needed

City of Ogden – Natural Events									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Winter Storm (blizzard, big hail, ice rain, low temp)	3.0	2.0	2.0	2.0	2.0	1.0	1.0	**56%**	**3**
Tornado >F3 (Fujita scale 158–206 mph)	1.0	2.0	3.0	3.0	3.0	2.0	1.0	**26%**	**9**
High Winds < F3 (Fujita scale 40–157 mph)	3.0	1.0	3.0	3.0	3.0	1.0	1.0	**67%**	**1**
Severe Heat / Extended Drought	3.0	1.0	1.0	1.0	1.0	1.0	1.0	**33%**	**8**
Earthquake >5.0	2.0	3.0	3.0	3.0	3.0	1.0	1.0	**52%**	**4**
Liquefaction	1.0	1.0	1.0	1.0	1.0	0.0	0.0	**7%**	**10**
Flood (heavy rain, snow melt, dam inundation)	2.0	1.0	2.0	2.0	2.0	1.0	1.0	**33%**	**8**
Wildfire	3.0	2.0	3.0	1.0	2.0	1.0	1.0	**56%**	**3**
Landslide	2.0	2.0	3.0	1.0	1.0	2.0	1.0	**37%**	**6**
Avalanche	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**11**
Lightning Thunderstorm >T3 (10-20 within 5 minutes)	3.0	1.0	1.0	1.0	1.0	2.0	1.0	**39%**	**5**
Average	**2.09**	**1.45**	**2.00**	**1.64**	**1.73**	**1.09**	**0.82**	**34%**	
		Risk = Probability * Severity							
		0.34	**0.70**	**0.48**					

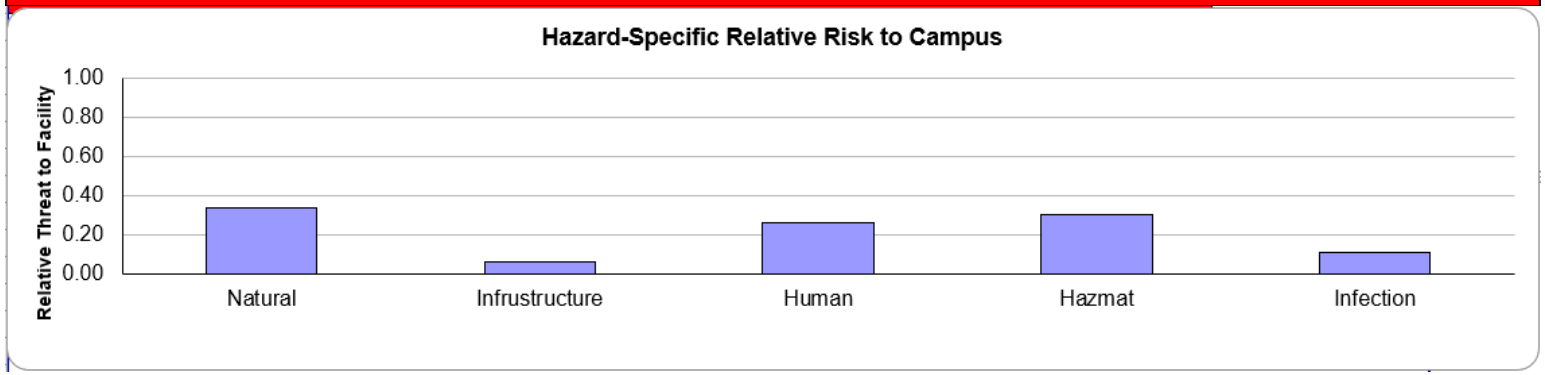
City of Ogden – Infrastructure Failures									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Electrical Power Failure >72 hrs.	0.0	1.0	1.0	2.0	1.0	1.0	1.0	**13%**	**2**
Fuel Shortage >72 hrs.	1.0	0.0	0.0	1.0	0.0	1.0	2.0	**7%**	**7**
Natural Gas Disruption >72 hrs.	1.0	1.0	1.0	1.0	1.0	1.0	2.0	**13%**	**2**
Water System Disruption >3 hrs.	1.0	0.0	0.0	1.0	1.0	1.0	1.0	**7%**	**7**
Sewer System Failure >3 hrs.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**5**
Steam/Boiler Failure	0.0	0.0	0.0	0.0	0.0	0.0	3.0	**0%**	**14**
HVAC System Failure >3 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	3.0	**0%**	**14**
Smoke/Fire Alarm System Failure >3 hrs.	1.0	0.0	0.0	0.0	0.0	1.0	0.0	**2%**	**12**
Fire Sprinkler Line Disruption	1.0	0.0	0.0	0.0	0.0	1.0	0.0	**2%**	**12**
Elevator Disruption >3 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**14**
Internal Flooding	1.0	0.0	1.0	1.0	0.0	1.0	0.0	**6%**	**9**
Backup Generator Failure >3 hrs.	1.0	0.0	0.0	1.0	0.0	1.0	0.0	**4%**	**10**
Food Service Disruption >72 hrs.	1.0	1.0	0.0	2.0	1.0	0.0	3.0	**13%**	**2**
Computer/Server System Disruption >3 hrs.	1.0	0.0	0.0	3.0	1.0	1.0	1.0	**11%**	**5**
Communications (phone, PBX, cell service) >3 hrs.	1.0	0.0	0.0	1.0	1.0	1.0	1.0	**7%**	**7**
Average	**0.80**	**0.27**	**0.27**	**0.93**	**0.47**	**0.73**	**1.20**	**6%**	
		Risk = Probability * Severity							
		0.06	**0.27**	**0.21**					

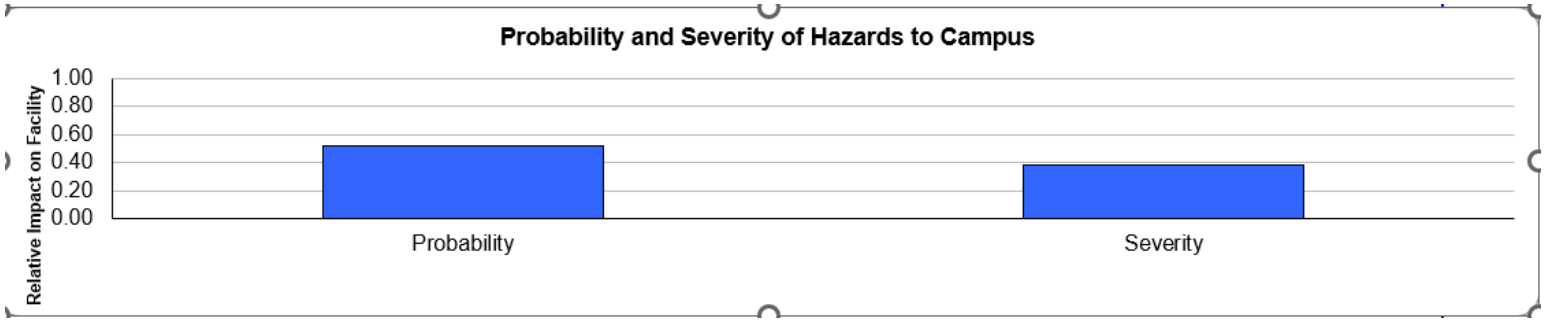
City of Ogden – Human-Related Incidents (accidental or intentional)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
MCI Trauma Transportation (Highway or Rail) Accident	3.0	3.0	1.0	1.0	1.0	1.0	1.0	**33%**	**3**
Mass Fatality Transportation (Air Travel) Accident	1.0	3.0	3.0	1.0	1.0	1.0	1.0	**19%**	**9**
MCI Trauma Active Shooter/Lone Wolf Terrorist	1.0	3.0	1.0	1.0	2.0	1.0	1.0	**17%**	**11**
MCI Blast Trauma / Terrorist	1.0	3.0	3.0	3.0	1.0	1.0	1.0	**22%**	**7**
Bomb Threat/Suspicious Package	1.0	1.0	1.0	2.0	1.0	1.0	1.0	**13%**	**14**
High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	2.0	2.0	2.0	1.0	1.0	1.0	1.0	**22%**	**7**
Large External Structure Fire	3.0	2.0	3.0	3.0	1.0	1.0	1.0	**61%**	**2**
Large Internal Structure Fire	3.0	2.0	3.0	3.0	1.0	1.0	1.0	**61%**	**2**
Hostage Situation	1.0	2.0	1.0	1.0	1.0	1.0	1.0	**13%**	**14**
Civil Unrest/Disturbance	1.0	2.0	2.0	2.0	1.0	1.0	1.0	**17%**	**11**
Labor Action/Staff Shortage	1.0	1.0	1.0	2.0	1.0	3.0	3.0	**20%**	**8**
Ransomware /Data Breach /Cyber Security	1.0	0.0	0.0	2.0	1.0	1.0	1.0	**9%**	**15**
Armed Robbery	2.0	2.0	1.0	2.0	1.0	1.0	1.0	**30%**	**4**
Armed Assault (Targeted/Gang Violence)	2.0	2.0	1.0	1.0	1.0	1.0	1.0	**26%**	**5**
Unarmed Assault (Workplace Violence)	1.0	2.0	1.0	2.0	1.0	1.0	1.0	**15%**	**12**
Average	**1.60**	**2.00**	**1.60**	**1.80**	**1.07**	**1.13**	**1.13**	**26%**	
		Risk = Probability * Severity							
		0.26	**0.53**	**0.49**					

City of Ogden – Hazardous Materials									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Large External Spill	2.0	1.0	1.0	1.0	1.0	1.0	1.0	**22%**	**3**
Diesel Spill	3.0	1.0	2.0	1.0	1.0	1.0	1.0	**39%**	**2**
Propane	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**4**
Natural Gas	3.0	2.0	3.0	2.0	1.0	1.0	1.0	**56%**	**1**
Average	**2.25**	**1.25**	**1.75**	**1.25**	**1.00**	**1.00**	**1.00**	**30%**	
		Risk = Probability * Severity							
		0.30	**0.75**	**0.40**					

City of Ogden – Infectious Disease Outbreak (Epidemic/Pandemic)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
Level 2 – Affecting >20% of staff	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Influenza	1.0	2.0	0.0	2.0	0.0	1.0	1.0	**11%**	**4**
Ebola, Hanta, & Hemorrhagic Fevers	1.0	1.0	0.0	1.0	1.0	1.0	1.0	**9%**	**6**
SARS (zoological illnesses)	1.0	2.0	0.0	1.0	1.0	1.0	1.0	**11%**	**4**
Tuberculosis (TB)	1.0	2.0	0.0	0.0	0.0	1.0	1.0	**7%**	**8**
Blood Borne Illness; (HIV, AIDS, Hepatitis)	1.0	2.0	0.0	0.0	0.0	1.0	1.0	**7%**	**8**
Novel, MERS or unidentified illness	1.0	2.0	0.0	2.0	2.0	1.0	1.0	**15%**	**1**
MRSA, ESBL, and VRE	1.0	2.0	0.0	1.0	1.0	1.0	1.0	**11%**	**4**
Norovirus or other food borne illness	1.0	1.0	0.0	2.0	2.0	1.0	1.0	**13%**	**2**
Average	**1.00**	**1.75**	**0.00**	**1.13**	**0.88**	**1.00**	**1.00**	**11%**	
		Risk = Probability * Severity							
		0.11	**0.33**	**0.32**					

City of Ogden – Summary of Facility Hazards Analysis						
	Natural	Infra-structure	Human	Hazmat	Infection	Total for Area
Probability	**0.70**	**0.27**	**0.53**	**0.75**	**0.33**	**0.52**
Severity	**0.48**	**0.21**	**0.49**	**0.40**	**0.32**	**0.38**
Hazard-Specific Relative Risk:	**0.34**	**0.06**	**0.26**	**0.30**	**0.11**	**0.20**





City of Ogden – Synopsis			
Event		**Risk**	**Rank**
Natural Events	Winter Storm (blizzard, big hail, ice rain, low temp)	56%	5
	Tornado >F3 (Fujita scale 158–206mph)	26%	15.5
	High Winds < F3 (Fujita scale 40–157mph)	67%	1
	Severe Heat / Extended Drought	33%	12
	Earthquake >5.0	52%	7
	Liquefaction	7%	42.5
	Flood (heavy rain, snow melt, dam inundation)	33%	12
	Wildfire	56%	5
	Landslide	37%	10
	Avalanche	0%	51.5
	Lightning Thunderstorm >T3 (10–20 within 5 minutes)	39%	8.5
Infrastructure Failure	Electrical Power Failure >72 hrs.	13%	28.5
	Fuel Shortage >72 hrs.	7%	42.5
	Natural Gas Disruption >72 hrs.	13%	28.5
	Water System Disruption >3 hrs.	7%	42.5
	Sewer System Failure >3 hrs.	11%	34.5
	Steam/Boiler Failure	0%	51.5
	HVAC System Failure >3 hrs.	0%	51.5
	Smoke/Fire Alarm System Failure >3 hrs.	2%	48.5
	Fire Sprinkler Line Disruption	2%	48.5
	Elevator Disruption >3 hrs.	0%	51.5
	Internal Flooding	6%	46
	Backup Generator Failure >3 hrs.	4%	47
	Food Service Disruption >72 hrs.	13%	28.5
	Computer/Server System Disruption >3 hrs.	11%	31.5
	Communications (phone, PBX, cell service) >3 hrs.	7%	39.5

City of Ogden – Synopsis			
Event		**Risk**	**Rank**
Human Incidents	MCI Trauma Transportation (Highway or Rail) Accident	33%	12
	Mass Fatality Transportation (Air Travel) Accident	19%	21
	MCI Trauma Active Shooter/Lone Wolf Terrorist	17%	22.5
	MCI Blast Trauma / Terrorist	22%	18
	Bomb Threat/Suspicious Package	13%	28.5
	High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	22%	18
	Large External Structure Fire	61%	2.5
	Large Internal Structure Fire	61%	2.5
	Hostage Situation	13%	28.5
	Civil Unrest/Disturbance	17%	22.5
	Labor Action/Staff Shortage	20%	20
	Ransomware /Data Breach /Cyber Security	9%	38.5
	Armed Robbery	30%	14
	Armed Assault (Targeted/Gang Violence)	26%	15.5
	Unarmed Assault (Workplace Violence)	15%	24.5
HAZMAT	Large External Spill	22%	18
	Diesel Spill	39%	8.5
	Propane	11%	34.5
	Natural Gas	56%	5
Infectious Disease Outbreak	Influenza	11%	34.5
	Ebola, Hanta, & Hemorrhagic Fevers	9%	38.5
	SARS (zoological illnesses)	11%	34.5
	Tuberculosis (TB)	7%	42.5
	Blood Borne Illness; (HIV, AIDS, Hepatitis)	7%	42.5
	Novel, MERS or unidentified illness	15%	24.5
	MRSA, ESBL, and VRE	11%	34.5
	Norovirus or other food borne illness	13%	28.5

City of Ogden – Top Risk						
%	**Rank**	**Risk**	**Mitigation** Any activities that actually eliminate or reduce the occurrence of a disaster. It may also include long-term activities that reduce the effects of unavoidable disasters.	**Preparedness** Preparedness activities are necessary to the extent that mitigation measures have not or cannot prevent disasters.	**Response** Actions that are designed to provide emergency assistance for casualties. Seek to reduce the possibility of secondary damage and speed recovery.	**Recovery** Continue until all systems return to normal. Short-term returns vital life support to minimum operating standards. The long term may continue for a number of years after a disaster.
89%	1	Earthquake >5.0	Fasten shelves/bookcase/files, Heavy objects away from beds, Flammable products and Hazardous chemicals should be stored away from heat sources and in tightly secured containers.	Annual Staff Training with Community and State resources "Great Utah Shakeout"	Keep calm, protect patients, Activate EOP plan, Conserve resources.	When Utility Service can be returned to normal. Work with community, city, county, state, federal and corporate directives in COOP plan
83%	2	Liquefaction				
78%	3	Severe Heat/ Extended Drought				
78%	4	Winter Storm (Blizzard, big hail, ice rain, low temp)				

City of Pleasant View – Natural Events									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Winter Storm (blizzard, big hail, ice rain, low temp)	3.0	2.0	2.0	2.0	1.0	2.0	2.0	**61%**	**2**
Tornado >F3 (Fujita scale 158–206 mph)	0.1	0.1	0.1	0.1	0.0	3.0	3.0	**1%**	**10**
High Winds < F3 (Fujita scale 40–157 mph)	2.0	0.1	1.0	0.5	0.0	1.5	1.5	**17%**	**7**
Severe Heat / Extended Drought	3.0	1.0	1.0	1.0	2.0	2.0	2.0	**50%**	**3**
Earthquake >5.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	**83%**	**1**
Liquefaction	1.0	2.0	3.0	2.0	2.0	2.0	2.0	**24%**	**5**
Flood (heavy rain, snow melt, dam inundation)	3.0	1.0	1.0	1.0	2.0	1.5	1.5	**44%**	**4**
Wildfire	1.0	1.0	1.0	0.5	1.0	2.0	2.0	**14%**	**8**
Landslide	1.0	0.0	0.0	1.0	1.0	1.0	1.0	**7%**	**9**
Avalanche	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**11**
Lightning Thunderstorm >T3 (10-20 within 5 minutes)	2.0	1.0	1.0	1.0	1.0	1.0	1.0	**22%**	**6**
Average	**1.74**	**1.02**	**1.19**	**1.10**	**1.09**	**1.64**	**1.64**	**25%**	
		Risk = Probability * Severity							
		0.25	**0.58**	**0.43**					

City of Pleasant View – Infrastructure Failures									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Electrical Power Failure >72 hrs.	2.5	0.1	0.1	0.1	0.0	1.0	1.0	**11%**	**10**
Fuel Shortage >72 hrs.	2.0	0.0	0.0	2.0	1.0	1.0	0.0	**15%**	**7**
Natural Gas Disruption >72 hrs.	2.0	0.0	1.0	1.0	1.0	1.0	0.0	**15%**	**7**
Water System Disruption >3 hrs.	3.0	2.5	1.0	1.0	1.0	1.0	2.0	**47%**	**1**
Sewer System Failure >3 hrs.	1.0	2.0	2.0	2.0	1.0	2.0	2.0	**20%**	**3**
Steam/Boiler Failure	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**14**
HVAC System Failure >3 hrs.	1.0	1.0	0.0	0.0	0.0	0.0	0.0	**2%**	**11**
Smoke/Fire Alarm System Failure >3 hrs.	1.5	1.0	1.0	1.0	0.0	1.0	0.0	**11%**	**9**
Fire Sprinkler Line Disruption	1.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**14**
Elevator Disruption >3 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**14**
Internal Flooding	1.0	1.0	1.0	2.0	1.0	2.0	1.0	**15%**	**7**
Backup Generator Failure >3 hrs.	1.0	1.0	3.0	1.0	1.0	2.0	1.0	**17%**	**5**
Food Service Disruption >72 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**13**
Computer/Server System Disruption >3 hrs.	2.0	1.0	2.0	2.0	1.0	1.0	3.0	**37%**	**2**
Communications (phone, PBX, cell service) >3 hrs.	1.0	1.0	1.0	2.0	0.0	3.0	3.0	**19%**	**4**
Average	**1.27**	**0.71**	**0.81**	**0.94**	**0.47**	**1.00**	**0.87**	**11%**	
		Risk = Probability * Severity							
		0.11	**0.42**	**0.27**					

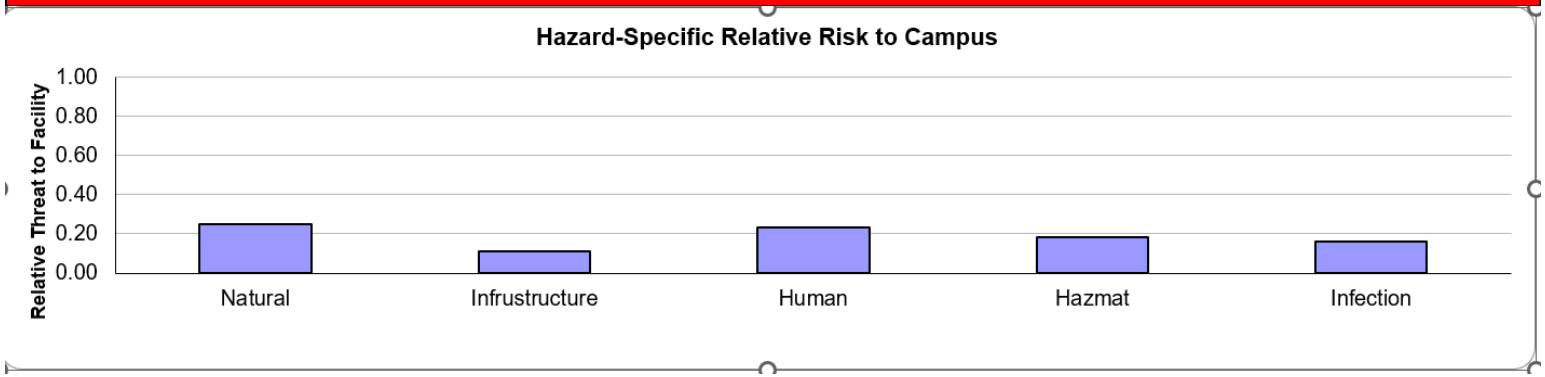
City of Pleasant View – Human-Related Incidents (accidental or intentional)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
MCI Trauma Transportation (Highway or Rail) Accident	1.0	3.0	1.0	1.0	1.0	2.0	2.0	**11%**	**14**
Mass Fatality Transportation (Air Travel) Accident	1.0	3.0	3.0	1.0	1.0	1.0	1.0	**19%**	**6**
MCI Trauma Active Shooter/Lone Wolf Terrorist	1.0	3.0	1.0	1.0	2.0	1.0	1.0	**17%**	**8**
MCI Blast Trauma / Terrorist	1.0	3.0	1.0	1.0	2.0	1.0	1.0	**17%**	**8**
Bomb Threat/Suspicious Package	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**14**
High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	1.0	2.0	1.0	1.0	1.0	1.0	1.0	**9%**	**15**
Large External Structure Fire	2.0	2.0	2.0	3.0	2.0	1.0	1.0	**41%**	**4**
Large Internal Structure Fire	2.0	2.0	2.0	3.0	2.0	1.0	1.0	**41%**	**4**
Hostage Situation	1.0	3.0	1.0	1.0	2.0	1.0	1.0	**17%**	**8**
Civil Unrest/Disturbance	1.0	3.0	2.0	2.0	2.5	1.0	1.0	**21%**	**5**
Labor Action/Staff Shortage	2.0	3.0	1.0	2.0	1.0	3.0	3.0	**48%**	**2**
Ransomware /Data Breach /Cyber Security	3.0	2.0	3.0	2.0	3.0	1.5	2.0	**75%**	**1**
Armed Robbery	1.0	1.0	1.0	1.0	2.0	1.0	1.0	**13%**	**12**
Armed Assault (Targeted/Gang Violence)	1.0	2.0	1.0	1.0	2.0	1.0	1.0	**15%**	**11**
Unarmed Assault (Workplace Violence)	1.0	2.0	1.0	1.0	2.0	1.0	1.0	**15%**	**11**
Average	**1.33**	**2.33**	**1.47**	**1.47**	**1.77**	**1.23**	**1.27**	**24%**	
		Risk = Probability * Severity							
		0.24	**0.44**	**0.53**					

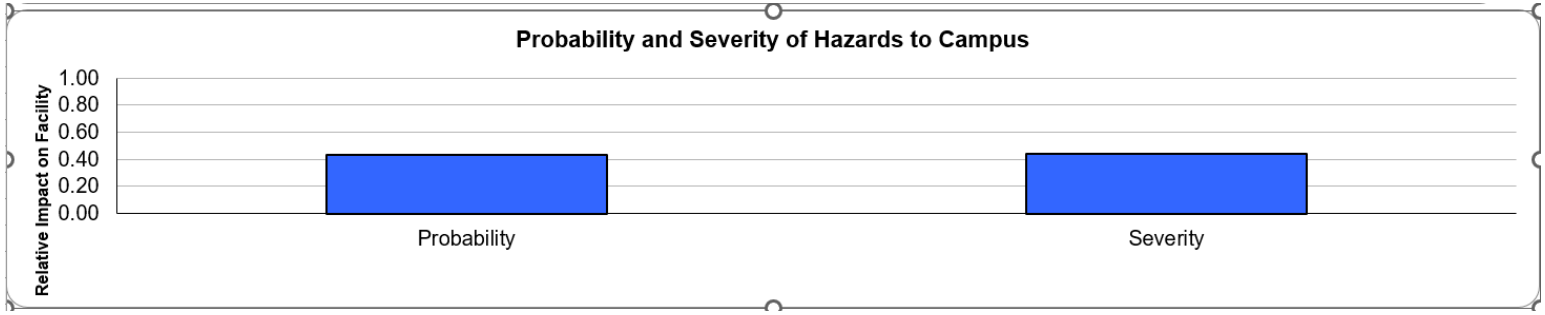
City of Pleasant View – Hazardous Materials									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Large External Spill	1.0	2.0	2.0	1.0	3.0	1.0	1.0	**19%**	**2**
Diesel Spill	1.0	2.0	2.0	1.0	2.0	1.0	1.0	**17%**	**3**
Propane	1.0	2.0	1.0	1.0	2.0	1.0	1.0	**15%**	**4**
Natural Gas	1.0	3.0	3.0	2.0	3.0	1.0	1.0	**24%**	**1**
Average	**1.00**	**2.25**	**2.00**	**1.25**	**2.50**	**1.00**	**1.00**	**19%**	
		Risk = Probability * Severity							
		0.19	**0.33**	**0.56**					

City of Pleasant View – Infectious Disease Outbreak (Epidemic/Pandemic)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
Level 2 – Affecting >20% of staff	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Influenza	2.0	2.0	0.0	1.0	1.0	2.0	1.5	**28%**	**1**
Ebola, Hanta, & Hemorrhagic Fevers	1.0	2.0	0.0	1.0	2.0	2.5	1.0	**16%**	**3**
SARS (zoological illnesses)	1.0	2.0	0.0	1.0	2.0	2.5	1.0	**16%**	**3**
Tuberculosis (TB)	1.0	2.0	0.0	1.0	1.0	2.5	1.0	**14%**	**6**
Blood Borne Illness; (HIV, AIDS, Hepatitis)	1.0	2.0	0.0	1.0	1.0	2.5	1.0	**14%**	**6**
Novel, MERS or unidentified illness	1.0	2.0	0.0	1.0	1.0	2.5	1.0	**14%**	**6**
MRSA, ESBL, and VRE	1.0	2.0	0.0	1.0	1.0	2.5	1.0	**14%**	**6**
Norovirus or other food borne illness	1.0	1.0	0.0	1.0	2.0	2.5	1.0	**14%**	**6**
Average	**1.13**	**1.88**	**0.00**	**1.00**	**1.38**	**2.44**	**1.06**	**16%**	
		Risk = Probability * Severity							
		0.16	**0.38**	**0.43**					

City of Pleasant View – Summary of Facility Hazards Analysis

	Natural	Infra-structure	Human	Hazmat	Infection	Total for Area
Probability	**0.58**	**0.42**	**0.44**	**0.33**	**0.38**	**0.43**
Severity	**0.43**	**0.27**	**0.53**	**0.56**	**0.43**	**0.44**
Hazard-Specific Relative Risk:	**0.25**	**0.11**	**0.24**	**0.19**	**0.16**	**0.19**





City of Pleasant View – Synopsis			
Event		**Risk**	**Rank**
Natural Events	Winter Storm (blizzard, big hail, ice rain, low temp)	61%	3
	Tornado >F3 (Fujita scale 158–206mph)	1%	48
	High Winds < F3 (Fujita scale 40–157mph)	17%	20
	Severe Heat / Extended Drought	50%	4
	Earthquake >5.0	83%	1
	Liquefaction	24%	12.5
	Flood (heavy rain, snow melt, dam inundation)	44%	7
	Wildfire	14%	36.5
	Landslide	7%	46
	Avalanche	0%	51
	Lightning Thunderstorm >T3 (10–20 within 5 minutes)	22%	14
Infrastructure Failure	Electrical Power Failure >72 hrs.	11%	44
	Fuel Shortage >72 hrs.	15%	30.5
	Natural Gas Disruption >72 hrs.	15%	30.5
	Water System Disruption >3 hrs.	47%	6
	Sewer System Failure >3 hrs.	20%	16
	Steam/Boiler Failure	0%	51
	HVAC System Failure >3 hrs.	2%	47
	Smoke/Fire Alarm System Failure >3 hrs.	11%	42
	Fire Sprinkler Line Disruption	0%	51
	Elevator Disruption >3 hrs.	0%	51
	Internal Flooding	15%	30.5
	Backup Generator Failure >3 hrs.	17%	23
	Food Service Disruption >72 hrs.	0%	51
	Computer/Server System Disruption >3 hrs.	37%	9
	Communications (phone, PBX, cell service) >3 hrs.	19%	17

City of Pleasant View – Synopsis			
Event		**Risk**	**Rank**
Human Incidents	MCI Trauma Transportation (Highway or Rail) Accident	11%	42
	Mass Fatality Transportation (Air Travel) Accident	19%	18
	MCI Trauma Active Shooter/Lone Wolf Terrorist	17%	23
	MCI Blast Trauma / Terrorist	17%	23
	Bomb Threat/Suspicious Package	11%	42
	High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	9%	45
	Large External Structure Fire	41%	8.5
	Large Internal Structure Fire	41%	8.5
	Hostage Situation	17%	23
	Civil Unrest/Disturbance	21%	15
	Labor Action/Staff Shortage	48%	5
	Ransomware /Data Breach /Cyber Security	75%	2
	Armed Robbery	13%	40
	Armed Assault (Targeted/Gang Violence)	15%	30.5
	Unarmed Assault (Workplace Violence)	15%	30.5
HAZMAT	Large External Spill	19%	18
	Diesel Spill	17%	23
	Propane	15%	30.5
	Natural Gas	24%	12.5
Infectious Disease Outbreak	Influenza	28%	11
	Ebola, Hanta, & Hemorrhagic Fevers	16%	26.5
	SARS (zoological illnesses)	16%	26.5
	Tuberculosis (TB)	14%	36.5
	Blood Borne Illness; (HIV, AIDS, Hepatitis)	14%	36.5
	Novel, MERS or unidentified illness	14%	36.5
	MRSA, ESBL, and VRE	14%	36.5
	Norovirus or other food borne illness	14%	36.5

City of Pleasant View – Top Risk

%	Rank	Risk	Mitigation	Preparedness	Response	Recovery
			Any activities that actually eliminate or reduce the occurrence of a disaster. It may also include long-term activities that reduce the effects of unavoidable disasters.	Preparedness activities are necessary to the extent that mitigation measures have not or cannot prevent disasters.	Actions that are designed to provide emergency assistance for casualties. Seek to reduce the possibility of secondary damage and speed recovery.	Continue until all systems return to normal. Short-term returns vital life support to minimum operating standards. The long term may continue for a number of years after a disaster.
83%	1	Earthquake >5.0	Seismic Retrofitting Planning:Identify and work toward retrofit of critical infrastructure, buildings, and bridges to enhance their ability to withstand seismic forces.Building Code Review:Implement and enforce stringent building codes that prioritize earthquake resistance in construction and renovation projects.Public Awareness and Education:Conduct public education campaigns to inform residents about earthquake risks, preparedness, and safety measures.Emergency Response Plans:Develop comprehensive earthquake response plans to coordinate emergency services and ensure a swift and organized response.Early Warning Systems:Implement and integrate early warning systems to provide alerts and initiate automated responses in the event of an earthquake.Emergency Drills:Conduct earthquake drills involving residents, businesses, schools, and public agencies to ensure preparedness and familiarity with response procedures.Critical Lifeline Resilience:Strengthen and safeguard critical lifeline infrastructure, such as water, electricity, and	Staff Training with Community and State resources "Great Utah Shakeout," CERT and Community focused training. Alternative facility and service operations planning. Practice earthquake and evacuation plans. Update plans and procedures based on lessons learned from exercises. Prepare emergency kits.Enroll community members in CERT training programs. Conduct periodic drills and exercises to keep CERT members updated on their skills and enhance their readiness for earthquake response.Identify and establish designated emergency shelters where people can seek refuge during and after an earthquake.Establish and communicate clear evacuation routes and plans to guide people safely to designated shelters or safe areas.Integrate earthquake preparedness education into school curricula to educate students and staff on earthquake safety measures.Use	Activate EOP plan, Ensure that all elected officials, employees (police, public works, building official and general admin staff), and CERT volunteers know what to do in case of an earthquake. Work together to communicate and address emergency response plans.	a. Rapid Damage Assessment:Conduct a thorough assessment of infrastructure damage and casualties to prioritize recovery efforts.b. Health and Medical Care:Provide immediate medical care and establish field hospitals to treat injured individuals.c. Rescue and Search Operations:Mobilize search and rescue teams to locate and rescue individuals trapped in collapsed structures.d. Rebuilding and Reconstruction:Develop a comprehensive reconstruction plan, considering sustainable and resilient rebuilding practices. a. Collaboration with Other CommunitiesCollaborate with neighboring communities for support and resources during the recovery process, including consideration of interlocal agreements.b. Information Sharing and Lessons Learned:Share experiences and lessons

%	Rank	Risk	Mitigation	Preparedness	Response	Recovery
			transportation, to maintain functionality during and after an earthquake.Community Emergency Response Teams (CERT):Establish and train community emergency response teams to provide immediate assistance and support until professional help arrives.Earthquake-Resistant Public Spaces:Design and retrofit public spaces, like parks and gathering areas, to serve as safe zones during earthquakes.Risk Assessment and Preparedness Planning:Conduct seismic risk assessments and use the findings to develop tailored earthquake preparedness and mitigation plans.Public-Private Partnerships:Collaborate with the private sector to promote earthquake resilience through joint initiatives, funding, and expertise.	various communication channels (e.g., alerts on smartphones, sirens, public announcements) to inform the public about earthquake risks and safety measures.Develop and review medical response plans to ensure that adequate healthcare facilities and resources are available to treat injured individuals.		learned from the earthquake with others to enhance earthquake preparedness and recovery efforts.Regular Training and Drills:Conduct regular earthquake drills and training exercises for individuals, communities, and emergency response teams to ensure readiness and familiarity with emergency procedures.
75%	2	Ransomware /Data Breach /Cyber Security	Risk Assessment and Management: a. Identify Assets and Vulnerabilities: Conduct a thorough inventory of assets, including hardware, software, and data, and identify potential vulnerabilities. b. Assess Risks: Evaluate the likelihood and potential impact of various cybersecurity threats to prioritize mitigation efforts. c. Develop Risk Mitigation Strategies: Develop strategies and plans to mitigate identified risks, considering the specific needs and context of the organization. Access Control and Authentication: a. Multi-Factor Authentication (MFA): Implement MFA to require multiple forms of verification for	Conduct a comprehensive assessment of cybersecurity risks and vulnerabilities. Incident Response Plan: Develop and maintain a well-defined incident response plan to effectively manage and mitigate cybersecurity incidents. Employee Training: Provide regular cybersecurity training to employees to enhance their awareness and response to potential threats. Access Control: Implement strong access controls, including multi-factor authentication (MFA) and role-based access, to secure systems	Incident Identification: Immediately identify and confirm a cybersecurity incident. Isolation and Containment: Isolate affected systems to prevent further damage and contain the incident. Forensic Analysis: Conduct forensic analysis to understand the scope and impact of the incident. Incident Mitigation: Take immediate actions to minimize damage and prevent the incident from spreading.	Data Restoration: Restore critical data from backups in a secure and verified manner. System Rebuilding: Rebuild affected systems and infrastructure to a secure and operational state. Security Assessment: Conduct a comprehensive security assessment to identify vulnerabilities and gaps. Policy and Procedure Update: Review and update cybersecurity policies and procedures based on lessons learned.

%	Rank	Risk	Mitigation	Preparedness	Response	Recovery
			user access, adding an extra layer of security. b. Role-Based Access Control (RBAC): Assign permissions and access rights based on job roles, limiting access to only what is necessary for each role. Regular Security Updates and Patch Management: a. Patch Systems and Software: Keep all software, operating systems, and applications up to date with the latest security patches and updates. b. Automated Patching: Use automated tools to ensure timely application of patches to reduce vulnerabilities. Network Security: a. Firewall Configuration: Properly configure firewalls to filter traffic and prevent unauthorized access to the network. b. Intrusion Detection Systems (IDS) and Intrusion Prevention Systems (IPS): Implement IDS and IPS to detect and prevent malicious activity in the network. Data Encryption and Privacy: a. Data Encryption: Use strong encryption algorithms to protect sensitive data both at rest and during transmission. b. Privacy Policies and Compliance: Incident Response Plan: a. Develop a Robust Incident Response Plan (IRP): Create a well-defined IRP that outlines the steps to be taken in the event of a	and data. Security Monitoring: Establish continuous security monitoring to detect and respond to potential security incidents promptly. Regular Backups: Perform regular backups of critical data and ensure their accessibility for efficient recovery in case of cyber incidents. Patch Management: Maintain up-to-date software and systems by applying security patches promptly to address known vulnerabilities. Security Policies and Procedures: Establish clear and comprehensive cybersecurity policies and procedures that align with industry best practices and compliance requirements. Incident Communication Plan: Develop a clear communication plan for internal and external stakeholders in the event of a cybersecurity incident. Vendor and Supply Chain Security: Assess and manage the cybersecurity risks associated with third-party vendors and supply chain partners.	Communication and Reporting: Notify appropriate stakeholders and regulatory authorities as per incident response plan. Evidence Preservation: Preserve evidence for investigations and potential legal action. Recovery and Restoration: Restore affected systems and data from backups after ensuring that they are clean and secure. Post-Incident Review: Conduct a thorough post-incident review to identify lessons learned and improve future incident response plans.	Employee Training: Provide additional cybersecurity training to employees based on the incident's learnings. Communication Strategy: Develop a communication strategy to address concerns and inform stakeholders about the recovery process. Incident Analysis: Conduct a detailed analysis of the incident to understand its root causes and improve incident response and recovery plans. Continuous Improvement: Implement recommendations and improvements to enhance cybersecurity resilience for the future.

%	Rank	Risk	Mitigation	Preparedness	Response	Recovery
			cybersecurity incident, including incident identification, containment, eradication, recovery, and lessons learned. b. Regular Drills and Training: Conduct regular drills and training exercises to ensure that staff are familiar with the IRP and can respond effectively to incidents. Employee Awareness and Training: a. Security Awareness Programs: Conduct ongoing training and awareness programs to educate employees about the latest cyber threats, social engineering techniques, and best practices. b. Phishing Simulations: Conduct phishing simulations to test and improve employees' ability to recognize and report phishing attempts. Regular Security Audits and Monitoring: a. Periodic Security Audits: Conduct regular security audits and vulnerability assessments to identify weaknesses and areas for improvement. b. Continuous Monitoring: Implement continuous monitoring systems to detect and respond to security incidents in real-time. Business Continuity and Disaster Recovery (BCDR): a. Backup and Recovery: Regularly back up critical data and establish a robust disaster recovery plan to restore operations quickly in the event of a cyber incident. b. Redundancy and Failover: Implement redundancy and failover			

%	Rank	Risk	Mitigation	Preparedness	Response	Recovery
			mechanisms for critical systems to minimize downtime. Collaboration and Information Sharing: a. Information Sharing Platforms: Participate in industry-specific information sharing platforms and share threat intelligence to stay informed about emerging threats. b. Collaborate with Peers: Collaborate with other organizations and share best practices to collectively strengthen cybersecurity measures. Secure Development Practices: a. Secure Coding: Train developers in secure coding practices to reduce vulnerabilities and potential exploits in software applications. b. Code Review: Conduct thorough code reviews to identify and rectify security vulnerabilities before deployment. Supply Chain Security: a. Vendor Risk Assessment: Assess and monitor the cybersecurity posture of vendors and third-party partners to mitigate supply chain risks. b. Security Requirements in Contracts: Include cybersecurity requirements and expectations in contracts with suppliers and vendors to ensure that they adhere to security standards. Implementing these cybersecurity mitigation measures and regularly updating them in response to evolving threats is critical to maintaining a strong cybersecurity			

%	Rank	Risk	Mitigation	Preparedness	Response	Recovery
			posture and protecting against potential cyber-attacks.			
61%	3	Winter Storm (blizzard, big hail, ice rain, low temp)	Weather Monitoring and Early Warning Systems: Monitor weather forecasts and use early warning systems to stay informed about approaching winter storms. Insulation and Weatherproofing: Insulate buildings, pipes, and water systems to minimize heat loss and prevent freezing during cold weather. Snow Removal and Ice Management: Develop a plan for snow removal and ice management to keep paths, roads, and critical areas clear and safe. Emergency Supplies and Preparedness Kits: Prepare emergency supply kits with essential items such as food, water, blankets, flashlights, and first aid supplies to sustain during power outages. Emergency Communication Plan: Establish an emergency communication plan to keep employees, residents, and stakeholders informed about the storm's impact and updates. Power Backup and Heating Systems: Ensure that backup power sources and heating systems are in place to maintain essential services during power outages. Community Outreach and Education: Educate the community on winter storm safety measures, including how to stay warm, avoid	Emergency Response Plan: Develop a robust winter storm emergency response plan outlining roles, responsibilities, and actions for various departments and agencies. Public Awareness Campaigns: Conduct public awareness campaigns to educate residents about winter storm risks, preparedness, and safety measures. Emergency Communication System: Establish an effective communication system to disseminate timely and accurate information to the public during winter storms. Road and Infrastructure Preparedness: Prepare snow plows, salt, and sand for road de-icing and ensure readiness to handle potential infrastructure issues caused by the storm. Shelter and Warmth Facilities: Identify and prepare emergency shelters, warming centers, and facilities for vulnerable populations to stay safe and warm. Resource Stockpile: Stockpile essential resources like food, water, blankets, and medical supplies to provide immediate assistance during	Activate Emergency Operations Center (EOC): Activate the EOC to centralize coordination and response efforts during the winter storm. Mobilize Snow Removal Teams: Deploy snow removal teams equipped with plows and salt/sand spreaders to clear roads and improve accessibility. Monitor and Communicate Weather Updates: Monitor weather forecasts and provide regular updates to the public regarding the storm's progress and safety precautions. Pre-treat Roads and Infrastructure: When possible and effective, pretreat roads, bridges, and critical infrastructure with anti-icing agents to prevent ice buildup. Establish Emergency Shelters: Open and prepare emergency shelters for residents, providing a safe and warm environment. Activate Warming	Road Cleanup and Restoration: Prioritize clearing and restoring roads to ensure safe transportation and accessibility throughout the city. Utility Restoration: Coordinate with utility companies to restore power, water, and other essential services in affected areas. Public Infrastructure Assessment: Assess the condition of public infrastructure (roads, bridges, public buildings) for damage and initiate repair and recovery efforts. Residential and Commercial Property Assessment: Assess residential and commercial properties for damage, facilitating recovery and supporting affected residents and businesses. Community Support and Assistance: Provide assistance and support to affected residents, including resources for housing, food, and other essential needs. Recovery Funding and Assistance Programs: Establish funding sources and assistance programs

%	Rank	Risk	Mitigation	Preparedness	Response	Recovery
			hypothermia, and safely operate heating equipment. Traffic Management and Road Safety: Coordinate with relevant authorities to manage traffic, clear roads, and improve road safety during and after winter storms. Collaborate with local emergency services and government agencies to ensure a coordinated response to winter storms and their aftermath. Emergency Shelter and Assistance: Establish emergency shelters and provide assistance to vulnerable populations, ensuring that they have a safe and warm place to stay during the storm.	and after the storm. Emergency Transportation: Plan for emergency transportation services to assist residents in need, particularly during extreme weather conditions. Collaboration with Stakeholders: Collaborate with local businesses, community organizations, and utility providers to enhance winter storm preparedness and response efforts. Employee Training and Drills: Train city employees and conduct winter storm preparedness drills to ensure readiness and efficiency in responding to emergencies. Coordination with Police and Public Works: Establish a strong collaboration with Police and Public Works in communicating weather-related conditions to receive timely updates and forecasts for effective storm monitoring and response. Power Backup and Heating Systems: Ensure that backup power sources and heating systems are in place to maintain essential services during power outages caused by the storm.	Centers: Establish warming centers where residents can seek temporary relief from the cold and access basic amenities. Ensure Utility Reliability: Coordinate with utility providers to minimize power outages and prioritize restoration efforts. Provide Public Transportation Updates: Communicate transportation updates, route changes, and delays to residents relying on public transportation. Coordinate with Emergency Services: Collaborate closely with emergency services (police, fire, EMS) to ensure a coordinated response and assistance during the storm. Community Outreach and Assistance: Use CERT to reach out to vulnerable populations, such as the elderly or disabled, to ensure that they have the necessary support and assistance during the storm. Press Briefings:	to aid in the recovery efforts for individuals, businesses, and communities impacted by the storm. Environmental Cleanup and Safety: Coordinate environmental cleanup efforts to address any hazardous materials or debris from the storm. Public Communication and Updates: Communicate recovery progress, updates, and available resources to the public through various channels to ensure transparency and engagement. Infrastructure Resilience Planning: Develop plans to enhance infrastructure resilience to withstand future winter storms and extreme weather events. Long-Term Community Resilience: Engage in long-term community resilience planning, ensuring that the city is better prepared for future winter storms and other emergencies.

%	Rank	Risk	Mitigation	Preparedness	Response	Recovery
					Conduct press briefings to update the media and public on storm impacts, response actions, and safety instructions.	
50%	4	Severe Heat/Extended Drought	Urban Greening and Shade Structures: Use planning tools to increase green spaces, trees, and shade structures to reduce urban heat islands, provide cooling, and improve overall climate resilience. Water Conservation and Efficiency: Implement water conservation measures, promote efficient water use, and invest in water-saving technologies to mitigate the impact of drought. Public Awareness and Education: Conduct public awareness campaigns to educate residents about water conservation, heat safety, and energy-saving practices during periods of extreme heat and drought. Heat Action Plans: Develop and implement heat action plans that include early warning systems, cooling centers, and strategies to protect vulnerable populations during heatwaves. Climate-Resilient Infrastructure: Retrofit and design infrastructure to withstand extreme heat and drought conditions, ensuring that they remain operational and efficient during prolonged periods of stress. Energy-Efficient Practices: Promote energy-efficient buildings,	Public Awareness and Education: Conduct public awareness campaigns to educate residents about heat-related risks, drought impacts, and conservation measures. Heat Action Plans: Develop and communicate heat action plans, including early warning systems, cooling center locations, and safety guidelines. Drought Response Plans: Establish and publicize drought response plans, focusing on water conservation, restrictions, and efficient water use. Emergency Communication: Enhance communication systems to rapidly disseminate heat and drought advisories, warnings, and updates to the public. Cooling Centers and Shelters: Identify and prepare cooling centers and emergency shelters to provide relief during extreme heat events. Water Conservation Campaigns: Promote water conservation campaigns to	Heatwave Response Activation: Activate a dedicated response team or task force to manage and coordinate actions during extreme heat events. Emergency Cooling Centers: Open and publicize cooling centers across the city to provide relief and hydration for residents during heatwaves. Water Supply Management: Monitor and manage water supply and distribution, implement water-saving measures, and educate the public on water conservation. Health and Safety Alerts: Issue public health and safety alerts, providing guidelines to residents on staying cool, hydrated, and protected from heat-related illnesses. Vulnerable Population Outreach: Reach out to vulnerable populations, such as the elderly and homeless, to ensure that they have access	Infrastructure Assessment and Repair: Conduct a thorough assessment of infrastructure, particularly focusing on water systems, to identify damage and prioritize repair and maintenance. Water Supply Restoration: Restore water supply systems to normal operations, ensuring that residents have access to clean and reliable water following the drought. Coordinate efforts with Pine View, Bona Vista and Weber Basin Water. Community Health Support: Provide support for individuals and communities affected by the heat and drought, offering healthcare services and mental health assistance as needed. Public Awareness and Education: Conduct post-event public awareness campaigns to educate residents on water conservation, sustainability, and resilience to future heat and drought events. Green Infrastructure and

%	Rank	Risk	Mitigation	Preparedness	Response	Recovery
			appliances, and transportation options to reduce energy consumption and decrease the heat generated by energy use. Community Cooling Centers: Establish cooling centers, especially in vulnerable neighborhoods, to provide refuge and relief for residents during heatwaves. Water Management and Storage: Invest in water management infrastructure, such as rainwater harvesting, stormwater management, and efficient water storage systems to tackle drought challenges. Collaboration and Partnerships: Collaborate with local businesses, religious groups, community organizations, government agencies, and academic institutions to develop and implement comprehensive heat and drought mitigation strategies. Sustainable Land Use Planning: Implement land use policies that encourage smart growth, reduce impervious surfaces, and prioritize sustainable development to mitigate urban heat and drought impacts. Emergency Response Preparedness: Enhance emergency response and preparedness for extreme heat events and drought, ensuring a well-coordinated and timely response to protect public health and safety.	encourage responsible water use, efficient irrigation, and reduced outdoor water consumption. Green Infrastructure and Shade Planning: Plan and implement green infrastructure projects to provide shade, reduce urban heat, and enhance resilience to heatwaves. Climate-Resilient Building Codes: Adopt and enforce building codes that promote energy-efficient and climate-resilient construction practices to mitigate heat impacts. Community Engagement: Engage communities and involve them in resilience-building efforts, encouraging participation in conservation and heat preparedness activities. Healthcare and Emergency Services Readiness: Work to make contacts and coordinate with local healthcare facilities and emergency services in an effort to prepare to handle increased health issues related to heatwaves and drought. Collaboration with Utilities: Collaborate with utility companies to ensure a reliable water and power supply during droughts, with	to cooling centers, hydration, and necessary support. Air Quality Monitoring: Monitor air quality and issue advisories, especially during heatwaves, to caution residents about potential health risks associated with poor air quality. Infrastructure and Utilities Check: Inspect critical infrastructure, especially the power grid, to ensure that it can handle increased demand during extreme heat and take proactive measures to prevent outages. Emergency Response Drills: Conduct drills to prepare emergency services for heatwave-related incidents and emergencies, ensuring a coordinated and efficient response. Public Transportation Adjustments: Modify public transportation schedules and routes to accommodate residents' needs during heatwaves and promote the use of public transit to reduce individual heat exposure.	Sustainability Projects: Invest in green infrastructure projects, such as drought-resistant landscaping and water-saving technologies, to enhance sustainability and reduce water use. Collaboration with Environmental Agencies: Collaborate with environmental agencies to develop long-term water management strategies, ensuring that the city is better prepared for future droughts. Data Analysis for Resilience Planning: Analyze data from the heatwave and drought to inform future resilience planning, helping the city adapt and mitigate the impacts of similar events. Community Resilience Programs: Establish community resilience programs that educate and empower residents to take an active role in conservation and climate resilience initiatives. Government Funding and Grants: Seek government funding and grants to support recovery efforts, infrastructure upgrades, and resilience projects aimed at

%	Rank	Risk	Mitigation	Preparedness	Response	Recovery
				contingency plans for potential disruptions. Data Monitoring and Analysis: Implement systems to monitor weather patterns, water levels, and other critical data for informed decision making and effective response.	Public Communication and Awareness: Use various communication channels to keep the public informed about the heatwave, provide safety tips, and share updates on cooling centers and other resources. Data Monitoring and Analysis: Monitor and analyze meteorological data, heat indices, and trends to anticipate and respond effectively to changing weather patterns during heatwaves.	mitigating future heat and drought impacts. Drought-Resistant Agriculture and Land Use: Promote drought-resistant agricultural practices and sustainable land use planning to ensure long-term resilience to water scarcity.
48%	5	Labor Action/Staff Shortage	Cross-Training and Skill Development: Cross-train employees across departments to ensure a broader skill set and flexibility during staff shortages, enabling them to fill critical roles. Strategic Workforce Planning: Conduct workforce analysis and planning to identify potential skill gaps and develop strategies for addressing shortages proactively. Resource Contingency Plans: Develop contingency plans that outline resource allocation, task prioritization, and alternative staffing arrangements in case of labor actions or shortages. Temporary Staffing Agreements: Establish agreements with temporary staffing agencies to quickly source additional workers during labor actions or peak demand	Contingency Planning: Develop comprehensive contingency plans that outline roles, responsibilities, and actions in the event of labor actions or staff shortages. Resource Mobilization Strategy: Establish a strategy to rapidly mobilize additional resources, including reassigning staff, hiring temporary workers, or leveraging volunteers. Critical Service Identification: Identify essential services and functions that require immediate attention and prioritize resource allocation to ensure their continued operation. Cross-Training and Skill Enhancement: Cross-train	Activate Crisis Management Team: Promptly activate a crisis management team to coordinate and oversee the city's response to the labor action or staff shortage. Emergency Workforce Mobilization: Mobilize an emergency workforce from other departments, contractors, or volunteers to fill critical roles and maintain essential services. Resource Allocation and Prioritization: Prioritize essential services and allocate resources strategically to minimize disruptions and ensure public safety and	Assess and Evaluate Impact: Conduct a comprehensive assessment to determine the extent of the impact on essential services, infrastructure, and community wellbeing. Resource Reinforcement: Strategically allocate additional resources and staff to critical functions and departments to expedite recovery and stabilize operations. Rebuild Workforce: Develop recruitment and hiring strategies to rebuild the workforce, including targeted campaigns to attract skilled personnel for vacant positions.

%	Rank	Risk	Mitigation	Preparedness	Response	Recovery
			periods. Technology and Automation Integration: Implement technology solutions and automation to streamline processes and reduce the dependency on a large workforce, enhancing operational efficiency. Overtime and Flexible Hours: Offer overtime opportunities and flexible working hours to current staff to accommodate increased demand during labor shortages. Volunteer and Community Partnerships: Establish partnerships with community organizations and volunteers to assist with essential services during labor actions or staff shortages. Effective Communication: Maintain transparent and open communication with employees, and stakeholders to address concerns, manage expectations, and minimize unrest. Succession Planning: Develop a robust succession plan to identify and prepare potential internal candidates for key roles, ensuring continuity during staff shortages. Employee Wellbeing Programs: Implement employee wellbeing programs to enhance job satisfaction, reduce turnover, and mitigate the risk of labor actions. Diversification of Suppliers and Contractors: Diversify suppliers and contractors to reduce	employees to perform multiple roles and enhance their skills to maintain operations in the absence of specific staff. Communication Protocols: Establish clear communication channels and protocols to keep employees informed, address concerns, and manage expectations during labor actions or staff shortages. Employee Engagement and Support: Foster a positive work environment, listen to employee feedback, and provide necessary support to maintain employee morale and minimize labor disruptions. Collaboration with Stakeholders: Collaborate with labor unions and stakeholders to build understanding, negotiate fair agreements, and minimize the risk of labor actions through effective communication and engagement. Outsourcing and Contracting Agreements: Establish agreements with external agencies or contractors to provide backup staff or services during labor shortages. Technology Utilization: Leverage technology solutions, automation, and digital	wellbeing. Regular Communication: Establish a central communication hub to provide regular updates and clear instructions to staff, the public, and stakeholders throughout the event. Alternative Service Delivery Models: Implement alternative service delivery models, such as remote work, flexible hours, or outsourcing, to maintain operations despite reduced staff availability. Flexible Policies and Agreements: Adjust policies and agreements to provide flexibility in work hours, tasks, and responsibilities to accommodate the altered workforce structure. Conflict Resolution and Negotiation: Initiate communication and negotiations with labor representatives to address grievances and work toward a resolution to minimize the duration and impact of the labor action. Temporary Staffing Recruitment: Engage temporary staffing agencies	Employee Support and Reintegration: Provide support and reintegration assistance to returning employees, ensuring a smooth transition back to their roles and responsibilities. Operational Adjustment and Optimization: Optimize operational procedures and workflows based on lessons learned, leveraging technology and efficient processes to enhance productivity. Stakeholder Engagement and Collaboration: Engage with labor unions, community groups, and stakeholders to rebuild relationships, address concerns, and foster collaboration for a smoother recovery. Public Communication: Communicate openly with the public to update them on the recovery progress, service availability, and measures being taken to restore normalcy. Training and Skill Development: Provide targeted training and skill development programs to empower employees and ensure that they have the

%	Rank	Risk	Mitigation	Preparedness	Response	Recovery
			dependency on a single entity, minimizing the impact of labor actions on the supply chain.	platforms to streamline processes, improve efficiency, and mitigate the impact of reduced staffing levels. Regular Drills and Simulations: Conduct regular drills and simulations to test response plans, identify gaps, and enhance preparedness for various labor action scenarios. Employee Retention Strategies: Implement strategies to improve employee retention, such as competitive compensation, career growth opportunities, and a positive work environment.	to rapidly recruit and deploy qualified individuals to critical roles, ensuring the continuity of essential services. Public Information and Engagement: Inform the public about service adjustments, provide guidance on alternative solutions, and encourage their understanding and support during the situation. Employee Wellbeing Support: Offer support and resources to employees, addressing their concerns, providing mental health assistance, and ensuring their wellbeing during this challenging period. Post-Event Analysis and Improvement: Conduct a thorough analysis of the response, identify areas for improvement, and update response plans and procedures based on lessons learned.	necessary expertise to fulfill their roles effectively. Enhanced Preparedness Planning: Update and enhance preparedness plans for potential future labor actions or staff shortages, incorporating lessons from the recent event. Performance Evaluation and Feedback: Conduct performance evaluations to identify areas of improvement and gather feedback from employees to enhance organizational resilience and adaptability.

City of Riverdale – Natural Events									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Winter Storm (blizzard, big hail, ice rain, low temp)	3.0	2.0	2.0	2.0	2.0	2.0	1.0	**61%**	**1**
Tornado >F3 (Fujita scale 158–206 mph)	1.0	2.0	3.0	3.0	3.0	2.0	2.0	**28%**	**7**
High Winds < F3 (Fujita scale 40–157 mph)	2.0	1.0	2.0	3.0	3.0	1.0	1.0	**41%**	**3**
Severe Heat / Extended Drought	3.0	1.0	1.0	1.0	1.0	1.0	1.0	**33%**	**5**
Earthquake >5.0	2.0	3.0	3.0	3.0	3.0	2.0	1.0	**56%**	**2**
Liquefaction	2.0	1.0	1.0	1.0	1.0	0.0	0.0	**15%**	**10**
Flood (heavy rain, snow melt, dam inundation)	2.0	1.0	2.0	1.0	2.0	1.0	1.0	**30%**	**6**
Wildfire	1.0	2.0	2.0	1.0	2.0	1.0	1.0	**17%**	**9**
Landslide	2.0	2.0	3.0	1.0	2.0	1.0	1.0	**37%**	**4**
Avalanche	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**11**
Lightning Thunderstorm >T3 (10-20 within 5 minutes)	2.0	1.0	1.0	1.0	1.0	2.0	1.0	**26%**	**8**
Average	**1.82**	**1.45**	**1.82**	**1.55**	**1.82**	**1.18**	**0.91**	**29%**	
		Risk = Probability * Severity							
		0.29	**0.61**	**0.48**					

City of Riverdale – Infrastructure Failures									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Electrical Power Failure >72 hrs.	2.0	1.0	1.0	3.0	1.0	0.0	0.0	**22%**	**1**
Fuel Shortage >72 hrs.	1.0	0.0	0.0	1.0	0.0	0.0	0.0	**2%**	**10**
Natural Gas Disruption >72 hrs.	1.0	1.0	1.0	1.0	1.0	0.0	0.0	**7%**	**3**
Water System Disruption >3 hrs.	1.0	0.0	0.0	1.0	1.0	0.0	0.0	**4%**	**6**
Sewer System Failure >3 hrs.	1.0	0.0	0.0	0.0	1.0	0.0	0.0	**2%**	**10**
Steam/Boiler Failure	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**14**
HVAC System Failure >3 hrs.	1.0	0.0	0.0	0.0	1.0	0.0	0.0	**2%**	**10**
Smoke/Fire Alarm System Failure >3 hrs.	1.0	0.0	0.0	0.0	1.0	0.0	0.0	**2%**	**10**
Fire Sprinkler Line Disruption	1.0	0.0	0.0	0.0	1.0	0.0	0.0	**2%**	**10**
Elevator Disruption >3 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**14**
Internal Flooding	0.0	0.0	0.0	0.0	0.0	2.0	0.0	**0%**	**14**
Backup Generator Failure >3 hrs.	1.0	0.0	0.0	0.0	1.0	0.0	0.0	**2%**	**10**
Food Service Disruption >72 hrs.	1.0	1.0	0.0	0.0	2.0	0.0	0.0	**6%**	**4**
Computer/Server System Disruption >3 hrs.	1.0	0.0	0.0	2.0	1.0	2.0	2.0	**13%**	**2**
Communications (phone, PBX, cell service) >3 hrs.	1.0	0.0	0.0	1.0	1.0	0.0	0.0	**4%**	**6**
Average	**0.87**	**0.20**	**0.13**	**0.60**	**0.80**	**0.27**	**0.13**	**3%**	
		Risk = Probability * Severity							
		0.03	**0.29**	**0.12**					

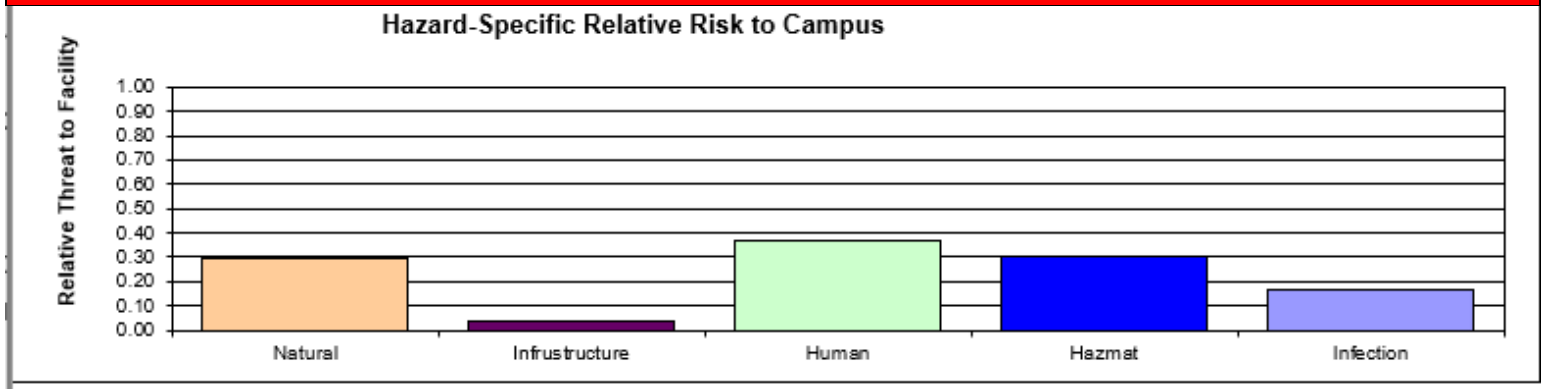
City of Riverdale – Human-Related Incidents (accidental or intentional)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
MCI Trauma Transportation (Highway or Rail) Accident	3.0	3.0	1.0	1.0	2.0	1.0	1.0	**39%**	**6**
Mass Fatality Transportation (Air Travel) Accident	2.0	3.0	3.0	3.0	3.0	1.0	1.0	**52%**	**4**
MCI Trauma Active Shooter/Lone Wolf Terrorist	3.0	3.0	1.0	2.0	3.0	1.0	1.0	**61%**	**3**
MCI Blast Trauma / Terrorist	1.0	3.0	3.0	3.0	1.0	1.0	1.0	**22%**	**12**
Bomb Threat/Suspicious Package	1.0	1.0	2.0	2.0	1.0	1.0	1.0	**15%**	**14**
High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	2.0	2.0	1.0	1.0	1.0	1.0	1.0	**19%**	**13**
Large External Structure Fire	3.0	3.0	3.0	3.0	2.0	1.0	1.0	**72%**	**2**
Large Internal Structure Fire	3.0	3.0	3.0	3.0	2.0	1.0	1.0	**72%**	**2**
Hostage Situation	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**11%**	**15**
Civil Unrest/Disturbance	2.0	2.0	2.0	2.0	1.0	1.0	1.0	**33%**	**7**
Labor Action/Staff Shortage	1.0	1.0	1.0	3.0	1.0	3.0	3.0	**22%**	**12**
Ransomware /Data Breach /Cyber Security	2.0	0.0	1.0	2.0	1.0	1.0	2.0	**26%**	**9**
Armed Robbery	3.0	2.0	1.0	2.0	1.0	1.0	1.0	**44%**	**5**
Armed Assault (Targeted/Gang Violence)	2.0	2.0	1.0	1.0	1.0	1.0	1.0	**26%**	**9**
Unarmed Assault (Workplace Violence)	2.0	2.0	1.0	1.0	1.0	1.0	1.0	**26%**	**9**
Average	**2.07**	**2.07**	**1.67**	**2.00**	**1.47**	**1.13**	**1.20**	**36%**	
		Risk = Probability * Severity							
		0.36	**0.69**	**0.53**					

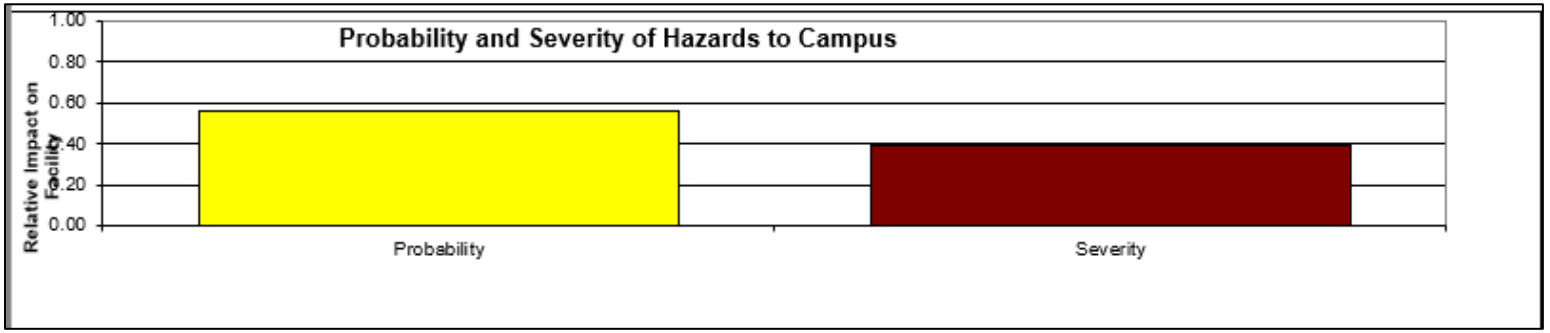
City of Riverdale – Hazardous Materials									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Large External Spill	3.0	2.0	2.0	3.0	1.0	0.0	0.0	**44%**	**2**
Diesel Spill	3.0	1.0	1.0	2.0	1.0	0.0	0.0	**28%**	**3**
Propane	1.0	1.0	1.0	1.0	1.0	0.0	0.0	**7%**	**4**
Natural Gas	3.0	2.0	3.0	3.0	1.0	0.0	0.0	**50%**	**1**
Average	**2.50**	**1.50**	**1.75**	**2.25**	**1.00**	**0.00**	**0.00**	**30%**	
		Risk = Probability * Severity							
		0.30	**0.83**	**0.36**					

City of Riverdale – Infectious Disease Outbreak (Epidemic/Pandemic)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
Level 2 – Affecting >20% of staff	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Influenza	2.0	2.0	0.0	2.0	0.0	1.0	2.0	**26%**	**2**
Ebola, Hanta, & Hemorrhagic Fevers	0.0	1.0	1.0	1.0	1.0	0.0	3.0	**0%**	**8**
SARS (zoological illnesses)	1.0	2.0	0.0	2.0	2.0	1.0	2.0	**17%**	**4**
Tuberculosis (TB)	1.0	2.0	0.0	0.0	0.0	2.0	2.0	**11%**	**7**
Blood Borne Illness; (HIV, AIDS, Hepatitis)	1.0	2.0	0.0	0.0	0.0	2.0	3.0	**13%**	**6**
Novel, MERS or unidentified illness	1.0	2.0	0.0	2.0	2.0	1.0	2.0	**17%**	**4**
MRSA, ESBL, and VRE	1.0	2.0	1.0	1.0	1.0	1.0	3.0	**17%**	**4**
Norovirus or other food borne illness	2.0	1.0	0.0	2.0	2.0	2.0	3.0	**37%**	**1**
Average	**1.13**	**1.75**	**0.25**	**1.25**	**1.00**	**1.25**	**2.50**	**17%**	
		Risk = Probability * Severity							
		0.17	**0.38**	**0.44**					

City of Riverdale – Summary of Facility Hazards Analysis

	Natural	Infra-structure	Human	Hazmat	Infection	Total for Area
Probability	**0.61**	**0.29**	**0.69**	**0.83**	**0.38**	**0.56**
Severity	**0.48**	**0.12**	**0.53**	**0.36**	**0.44**	**0.39**
Hazard-Specific Relative Risk:	**0.29**	**0.03**	**0.36**	**0.30**	**0.17**	**0.22**





City of Riverdale – Synopsis			
Event		**Risk**	**Rank**
Natural Events	Winter Storm (blizzard, big hail, ice rain, low temp)	61%	3.5
	Tornado >F3 (Fujita scale 158–206mph)	28%	17.5
	High Winds < F3 (Fujita scale 40–157mph)	41%	10
	Severe Heat / Extended Drought	33%	14.5
	Earthquake >5.0	56%	5
	Liquefaction	15%	32.5
	Flood (heavy rain, snow melt, dam inundation)	30%	16
	Wild Fire	17%	29.5
	Landslide	37%	12.5
	Avalanche	0%	51
	Lightning Thunderstorm >T3 (10–20 within 5 minutes)	26%	21
Infrastructure Failure	Electrical Power Failure >72 hrs.	22%	25
	Fuel Shortage >72 hrs.	2%	45.5
	Natural Gas Disruption >72 hrs.	7%	38.5
	Water System Disruption >3 hrs.	4%	41.5
	Sewer System Failure >3 hrs.	2%	45.5
	Steam/Boiler Failure	0%	51
	HVAC System Failure >3 hrs.	2%	45.5
	Smoke/Fire Alarm System Failure >3 hrs.	2%	45.5
	Fire Sprinkler Line Disruption	2%	45.5
	Elevator Disruption >3 hrs.	0%	51
	Internal Flooding	0%	51
	Backup Generator Failure >3 hrs.	2%	45.5
	Food Service Disruption >72 hrs.	6%	40
	Computer/Server System Disruption >3 hrs.	13%	31.5
	Communications (phone, PBX, cell service) >3 hrs.	4%	38.5

City of Riverdale – Synopsis			
Event		**Risk**	**Rank**
Human Incidents	MCI Trauma Transportation (Highway or Rail) Accident	39%	11
	Mass Fatality Transportation (Air Travel) Accident	52%	6
	MCI Trauma Active Shooter/Lone Wolf Terrorist	61%	3.5
	MCI Blast Trauma / Terrorist	22%	25
	Bomb Threat/Suspicious Package	15%	32.5
	High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	19%	27
	Large External Structure Fire	72%	1.5
	Large Internal Structure Fire	72%	1.5
	Hostage Situation	11%	36.5
	Civil Unrest/Disturbance	33%	14.5
	Labor Action/Staff Shortage	22%	25
	Ransomware /Data Breach /Cyber Security	26%	21
	Armed Robbery	44%	8.5
	Armed Assault (Targeted/Gang Violence)	26%	21
	Unarmed Assault (Workplace Violence)	26%	21
HAZMAT	Large External Spill	44%	8.5
	Diesel Spill	28%	17.5
	Propane	7%	38.5
	Natural Gas	50%	7
Infectious Disease Outbreak	Influenza	26%	21
	Ebola, Hanta, & Hemorrhagic Fevers	0%	51
	SARS (zoological illnesses)	17%	29.5
	Tuberculosis (TB)	11%	36.5
	Blood Borne Illness; (HIV, AIDS, Hepatitis)	13%	34.5
	Novel, MERS or unidentified illness	17%	29.5
	MRSA, ESBL, and VRE	17%	29.5
	Norovirus or other food borne illness	37%	12.5

City of Riverdale – Top Risk						
%	**Rank**	**Risk**	**Mitigation** Any activities that actually eliminate or reduce the occurrence of a disaster. It may also include long-term activities that reduce the effects of unavoidable disasters.	**Preparedness** Preparedness activities are necessary to the extent that mitigation measures have not or cannot prevent disasters.	**Response** Actions that are designed to provide emergency assistance for casualties. Seek to reduce the possibility of secondary damage and speed recovery.	**Recovery** Continue until all systems return to normal. Short-term returns vital life support to minimum operating standards. The long term may continue for a number of years after a disaster.
89%	1	Earthquake >5.0	Fasten shelves/bookcase/files, Heavy objects away from beds, Flammable products and Hazardous chemicals should be stored away from heat sources and in tightly secured containers.	Annual Staff Training with Community and State resources "Great Utah Shakeout"	Keep calm, protect patients, Activate EOP plan, Conserve resources.	When Utility Service can be returned to normal. Work with community, city, county, state, federal and corporate directives in COOP plan
83%	2	MCI Blast Trauma / Terrorist				
78%	3	Liquefaction				
78%	4	MCI Trauma Active Shooter/Lone Wolf Terrorist				
72%	5	Unarmed Assault (Workplace Violence)				

City of Uintah – Natural Events									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Winter Storm (blizzard, big hail, ice rain, low temp)	3.0	2.5	2.0	1.5	1.0	1.0	1.0	**50%**	**3**
Tornado >F3 (Fujita scale 158–206 mph)	0.1	0.1	0.1	0.1	0.0	2.0	2.0	**1%**	**10**
High Winds < F3 (Fujita scale 40–157 mph)	2.0	0.4	2.0	2.0	0.0	1.5	1.5	**27%**	**8**
Severe Heat / Extended Drought	3.0	1.5	1.5	1.0	1.0	1.5	1.5	**44%**	**5**
Earthquake >5.0	3.0	3.0	3.0	3.0	2.0	1.0	1.5	**75%**	**1**
Liquefaction	2.0	2.5	2.5	2.0	2.0	2.0	2.0	**48%**	**4**
Flood (heavy rain, snow melt, dam inundation)	3.0	2.0	2.0	2.0	2.0	1.5	1.5	**61%**	**2**
Wild Fire	2.0	1.5	1.5	1.0	1.0	1.0	1.5	**28%**	**7**
Landslide	0.5	0.0	0.5	0.5	1.0	1.5	1.0	**4%**	**9**
Avalanche	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**11**
Lightning Thunderstorm >T3 (10-20 within 5 minutes)	2.0	1.5	1.5	1.0	1.0	1.0	1.5	**28%**	**7**
Average	**1.87**	**1.36**	**1.51**	**1.28**	**1.00**	**1.27**	**1.36**	**27%**	
		Risk = Probability * Severity							
		0.27	**0.62**	**0.43**					

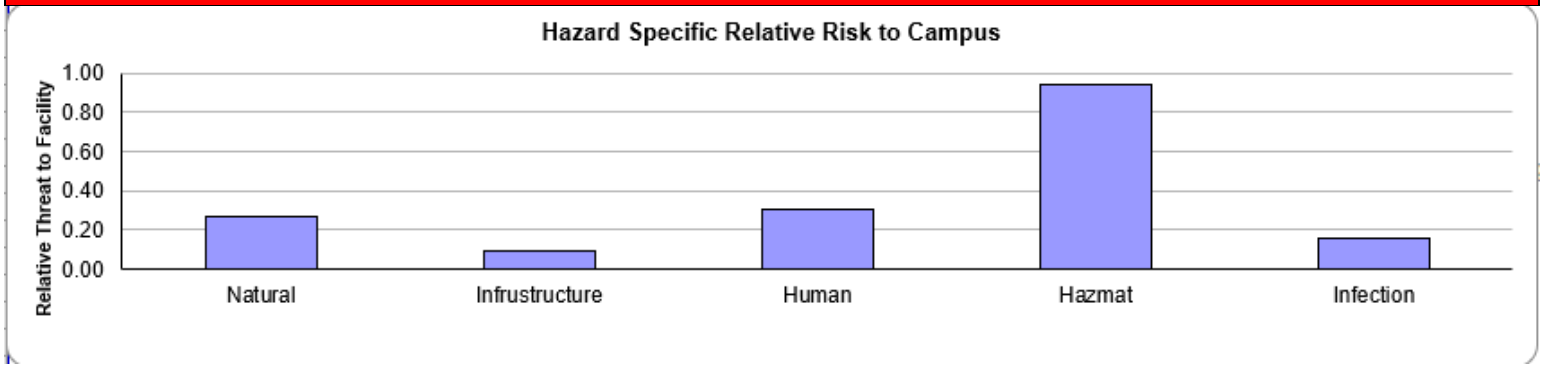
City of Uintah – Infrastructure Failures									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Electrical Power Failure >72 hrs.	1.0	0.1	0.1	1.5	0.0	1.0	1.0	**7%**	**9**
Fuel Shortage >72 hrs.	1.0	0.0	0.0	2.0	1.0	1.0	2.0	**11%**	**7**
Natural Gas Disruption >72 hrs.	1.0	0.0	1.0	1.0	1.0	1.0	0.0	**7%**	**8**
Water System Disruption >3 hrs.	3.0	2.5	1.0	2.0	1.0	1.0	2.0	**53%**	**1**
Sewer System Failure >3 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**14**
Steam/Boiler Failure	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**14**
HVAC System Failure >3 hrs.	1.0	1.0	0.0	0.0	0.0	0.0	0.0	**2%**	**11**
Smoke/Fire Alarm System Failure >3 hrs.	1.5	1.0	1.0	1.0	0.0	1.0	0.0	**11%**	**7**
Fire Sprinkler Line Disruption	0.0	0.0	0.0	1.0	0.0	0.0	0.0	**0%**	**14**
Elevator Disruption >3 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**14**
Internal Flooding	2.0	1.0	2.0	2.0	1.0	2.0	2.0	**37%**	**3**
Backup Generator Failure >3 hrs.	1.5	1.0	3.0	2.0	1.0	1.0	1.0	**25%**	**5**
Food Service Disruption >72 hrs.	1.0	1.0	0.0	0.0	0.0	0.0	2.0	**6%**	**9**
Computer/Server System Disruption >3 hrs.	2.0	1.0	2.0	2.0	1.0	1.0	3.0	**37%**	**3**
Communications (phone, PBX, cell service) >3 hrs.	1.5	1.5	1.0	2.0	0.0	3.0	3.0	**29%**	**4**
Average	**1.10**	**0.67**	**0.74**	**1.10**	**0.40**	**0.80**	**1.07**	**10%**	
		Risk = Probability * Severity							
		0.10	**0.37**	**0.27**					

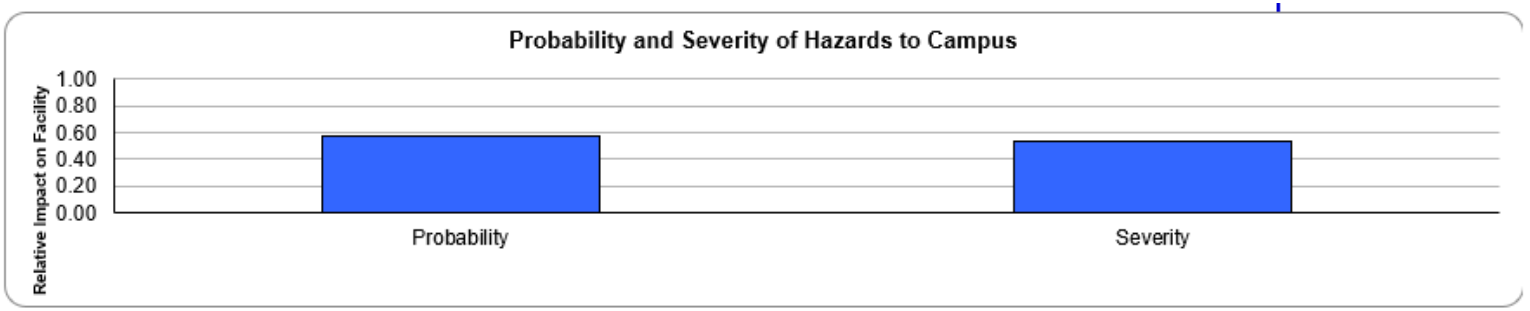
City of Uintah – Human-Related Incidents (accidental or intentional)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
MCI Trauma Transportation (Highway or Rail) Accident	3.0	3.0	3.0	3.0	3.0	2.5	1.5	**61%**	**2**
Mass Fatality Transportation (Air Travel) Accident	3.0	3.0	3.0	2.0	2.0	2.5	2.0	**81%**	**1**
MCI Trauma Active Shooter/Lone Wolf Terrorist	1.0	3.0	1.5	1.5	2.0	1.5	1.5	**20%**	**9**
MCI Blast Trauma / Terrorist	0.5	3.0	2.0	1.0	2.0	1.0	1.5	**10%**	**15**
Bomb Threat/Suspicious Package	1.5	1.5	1.0	1.0	1.0	1.0	1.0	**18%**	**10**
High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	2.0	2.5	1.0	1.0	1.0	1.0	1.5	**22%**	**7**
Large External Structure Fire	2.0	2.0	2.0	3.0	2.0	1.0	1.0	**41%**	**4**
Large Internal Structure Fire	2.5	2.0	3.0	3.0	2.0	1.0	1.0	**56%**	**3**
Hostage Situation	1.0	3.0	1.0	1.0	1.5	1.0	1.0	**16%**	**13**
Civil Unrest/Disturbance	1.0	3.0	2.0	2.0	2.5	1.0	1.0	**21%**	**8**
Labor Action/Staff Shortage	1.0	3.0	1.0	2.0	1.0	3.0	3.0	**24%**	**6**
Ransomware /Data Breach /Cyber Security	2.0	1.0	0.0	2.5	2.0	1.5	1.5	**31%**	**5**
Armed Robbery	1.0	1.0	1.0	1.0	2.0	1.0	1.0	**13%**	**14**
Armed Assault (Targeted/Gang Violence)	1.0	2.0	1.0	1.0	2.0	1.0	2.0	**17%**	**12**
Unarmed Assault (Workplace Violence)	1.0	2.0	1.0	1.0	2.0	1.0	2.0	**17%**	**12**
Average	**1.57**	**2.33**	**1.57**	**1.73**	**1.87**	**1.40**	**1.50**	**30%**	
		Risk = Probability * Severity							
		0.30	**0.52**	**0.58**					

City of Uintah – Hazardous Materials									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Large External Spill	3.0	3.0	3.0	3.0	3.0	3.0	2.0	**94%**	**3**
Diesel Spill	3.0	3.0	3.0	3.0	3.0	3.0	2.0	**94%**	**3**
Propane	3.0	3.0	3.0	3.0	3.0	3.0	2.0	**94%**	**3**
Natural Gas	3.0	3.0	3.0	3.0	3.0	3.0	2.0	**94%**	**3**
Average	**3.00**	**3.00**	**3.00**	**3.00**	**3.00**	**3.00**	**2.00**	**94%**	
		Risk = Probability * Severity							
		0.94	**1.00**	**0.94**					

City of Uintah – Infectious Disease Outbreak (Epidemic/Pandemic)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
Level 2 – Affecting >20% of staff	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Influenza	2.0	2.0	0.0	1.0	1.0	2.5	1.0	**28%**	**1**
Ebola, Hanta, & Hemorrhagic Fevers	1.0	2.0	0.0	1.0	2.0	2.5	1.0	**16%**	**3**
SARS (zoological illnesses)	1.0	2.0	0.0	1.0	2.0	2.5	1.0	**16%**	**3**
Tuberculosis (TB)	1.0	2.0	0.0	1.0	1.0	2.5	1.0	**14%**	**6**
Blood Borne Illness; (HIV, AIDS, Hepatitis)	1.0	2.0	0.0	1.0	1.0	2.5	1.0	**14%**	**6**
Novel, MERS or unidentified illness	1.0	2.0	0.0	1.0	1.0	2.5	1.0	**14%**	**6**
MRSA, ESBL, and VRE	1.0	2.0	0.0	1.0	1.0	2.5	1.0	**14%**	**6**
Norovirus or other food borne illness	1.0	1.0	0.0	1.0	2.0	2.5	1.0	**14%**	**6**
Average	**1.13**	**1.88**	**0.00**	**1.00**	**1.38**	**2.50**	**1.00**	**16%**	
		Risk = Probability * Severity							
		0.16	**0.38**	**0.43**					

City of Uintah – Summary of Facility Hazards Analysis						
	Natural	Infra-structure	Human	Hazmat	Infection	Total for Area
Probability	**0.62**	**0.37**	**0.52**	**1.00**	**0.38**	**0.58**
Severity	**0.43**	**0.27**	**0.58**	**0.94**	**0.43**	**0.53**
Hazard-Specific Relative Risk:	**0.27**	**0.10**	**0.30**	**0.94**	**0.16**	**0.31**





City of Uintah – Synopsis			
Event		**Risk**	**Rank**
Natural Events	Winter Storm (blizzard, big hail, ice rain, low temp)	50%	11
	Tornado >F3 (Fujita scale 158–206mph)	1%	48
	High Winds < F3 (Fujita scale 40–157mph)	27%	22
	Severe Heat / Extended Drought	44%	13
	Earthquake >5.0	75%	6
	Liquefaction	48%	12
	Flood (heavy rain, snow melt, dam inundation)	61%	7.5
	Wild Fire	28%	20
	Landslide	4%	46
	Avalanche	0%	51
	Lightning Thunderstorm >T3 (10–20 within 5 minutes)	28%	20
Infrastructure Failure	Electrical Power Failure >72 hrs.	7%	44
	Fuel Shortage >72 hrs.	11%	40.5
	Natural Gas Disruption >72 hrs.	7%	43
	Water System Disruption >3 hrs.	53%	10
	Sewer System Failure >3 hrs.	0%	51
	Steam/Boiler Failure	0%	51
	HVAC System Failure >3 hrs.	2%	47
	Smoke/Fire Alarm System Failure >3 hrs.	11%	40.5
	Fire Sprinkler Line Disruption	0%	51
	Elevator Disruption >3 hrs.	0%	51
	Internal Flooding	37%	15.5
	Backup Generator Failure >3 hrs.	25%	23
	Food Service Disruption >72 hrs.	6%	45
	Computer/Server System Disruption >3 hrs.	37%	14.5
	Communications (phone, PBX, cell service) >3 hrs.	29%	17

City of Uintah – Synopsis			
Event		**Risk**	**Rank**
Human Incidents	MCI Trauma Transportation (Highway or Rail) Accident	61%	7.5
	Mass Fatality Transportation (Air Travel) Accident	81%	5
	MCI Trauma Active Shooter/Lone Wolf Terrorist	20%	27
	MCI Blast Trauma / Terrorist	10%	42
	Bomb Threat/Suspicious Package	18%	28
	High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	22%	25
	Large External Structure Fire	41%	14
	Large Internal Structure Fire	56%	9
	Hostage Situation	16%	32
	Civil Unrest/Disturbance	21%	26
	Labor Action/Staff Shortage	24%	24
	Ransomware /Data Breach /Cyber Security	31%	17
	Armed Robbery	13%	39
	Armed Assault (Targeted/Gang Violence)	17%	29.5
	Unarmed Assault (Workplace Violence)	17%	29.5
HAZMAT	Large External Spill	94%	2.5
	Diesel Spill	94%	2.5
	Propane	94%	2.5
	Natural Gas	94%	2.5
Infectious Disease Outbreak	Influenza	28%	20
	Ebola, Hanta, & Hemorrhagic Fevers	16%	32
	SARS (zoological illnesses)	16%	32
	Tuberculosis (TB)	14%	36
	Blood Borne Illness; (HIV, AIDS, Hepatitis)	14%	36
	Novel, MERS or unidentified illness	14%	36
	MRSA, ESBL, and VRE	14%	36
	Norovirus or other food borne illness	14%	36

City of Uintah – Top Risk						
%	**Rank**	**Risk**	**Mitigation** Any activities that actually eliminate or reduce the occurrence of a disaster. It may also include long-term activities that reduce the effects of unavoidable disasters.	**Preparedness** Preparedness activities are necessary to the extent that mitigation measures have not or cannot prevent disasters.	**Response** Actions that are designed to provide emergency assistance for casualties. Seek to reduce the possibility of secondary damage and speed recovery.	**Recovery** Continue until all systems return to normal. Short-term returns vital life support to minimum operating standards. The long term may continue for a number of years after a disaster.
78%	1	Earthquake >5.0	Fasten shelves/bookcase/files, Heavy objects away from desks, Flammable products and Hazardous chemicals should be stored away from heat sources and in tightly secured containers.	Staff Training with Community and State resources "Great Utah Shakeout"	Keep calm, protect patients, Activate EOP plan, Conserve resources.	When Utility Service can be returned to normal. Work with community, city, county, state, federal and corporate directives in COOP plan
61%	2.5	Flood (heavy rain, snow melt, dam inundation)	Ditches cleaned/dredged out yearly			
61%	2.5					
67%	4	Sewer System Failure >3 hrs.	Get all lift stations on backup generators and regularly check and maintain			
64%	5	Winter Storm (blizzard, big hail, ice rain, low temp)	Maintain equipment, train employees, have adequate staff and supplies stocked.			

City of West Haven – Natural Events									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Winter Storm (blizzard, big hail, ice rain, low temp)	2.0	2.0	1.0	2.0	1.0	1.0	2.0	**33%**	**5**
Tornado >F3 (Fujita scale 158–206 mph)	0.0	0.0	0.0	0.0	0.0	3.0	3.0	**0%**	**10**
High Winds < F3 (Fujita scale 40–157 mph)	3.0	1.0	2.0	2.0	3.0	1.0	1.0	**56%**	**2**
Severe Heat / Extended Drought	3.0	1.0	2.0	1.0	1.0	3.0	2.0	**56%**	**2**
Earthquake >5.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	**41%**	**4**
Liquefaction	2.0	1.0	2.0	2.0	3.0	2.0	1.0	**41%**	**4**
Flood (heavy rain, snow melt, dam inundation)	2.0	1.0	2.0	1.0	1.0	2.0	1.0	**30%**	**7**
Wild Fire	1.0	1.0	1.0	1.0	1.0	3.0	1.0	**15%**	**8**
Landslide	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**10**
Avalanche	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**10**
Lightning Thunderstorm >T3 (10-20 within 5 minutes)	2.0	1.0	1.0	1.0	1.0	3.0	1.0	**30%**	**7**
Average	**1.55**	**0.91**	**1.18**	**1.09**	**1.18**	**1.82**	**1.18**	**21%**	
		Risk = Probability * Severity							
		0.21	**0.52**	**0.41**					

City of West Haven – Infrastructure Failures									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Electrical Power Failure >72 hrs.	1.0	1.0	2.0	2.0	1.0	1.0	2.0	**17%**	**11**
Fuel Shortage >72 hrs.	1.0	1.0	2.0	2.0	1.0	2.0	3.0	**20%**	**7**
Natural Gas Disruption >72 hrs.	1.0	1.0	2.0	2.0	1.0	0.0	0.0	**11%**	**14**
Water System Disruption >3 hrs.	1.0	1.0	2.0	2.0	0.0	2.0	2.0	**17%**	**11**
Sewer System Failure >3 hrs.	1.0	1.0	2.0	2.0	1.0	2.0	2.0	**19%**	**9**
Steam/Boiler Failure	1.0	1.0	2.0	2.0	2.0	3.0	3.0	**24%**	**2**
HVAC System Failure >3 hrs.	1.0	1.0	2.0	2.0	2.0	3.0	3.0	**24%**	**2**
Smoke/Fire Alarm System Failure >3 hrs.	1.0	1.0	1.0	1.0	1.0	2.0	3.0	**17%**	**11**
Fire Sprinkler Line Disruption	1.0	0.0	1.0	1.0	1.0	3.0	2.0	**15%**	**13**
Elevator Disruption >3 hrs.	0.0	0.0	0.0	1.0	0.0	0.0	0.0	**0%**	**15**
Internal Flooding	1.0	1.0	2.0	2.0	1.0	3.0	2.0	**20%**	**7**
Backup Generator Failure >3 hrs.	1.0	1.0	1.0	3.0	1.0	2.0	3.0	**20%**	**7**
Food Service Disruption >72 hrs.	1.0	2.0	1.0	2.0	1.0	3.0	2.0	**20%**	**6**
Computer/Server System Disruption >3 hrs.	1.0	1.0	1.0	3.0	3.0	2.0	2.0	**22%**	**4**
Communications (phone, PBX, cell service) >3 hrs.	1.0	2.0	1.0	3.0	3.0	2.0	2.0	**24%**	**2**
Average	**0.93**	**1.00**	**1.47**	**2.00**	**1.27**	**2.00**	**2.07**	**17%**	
		Risk = Probability * Severity							
		0.17	**0.31**	**0.54**					

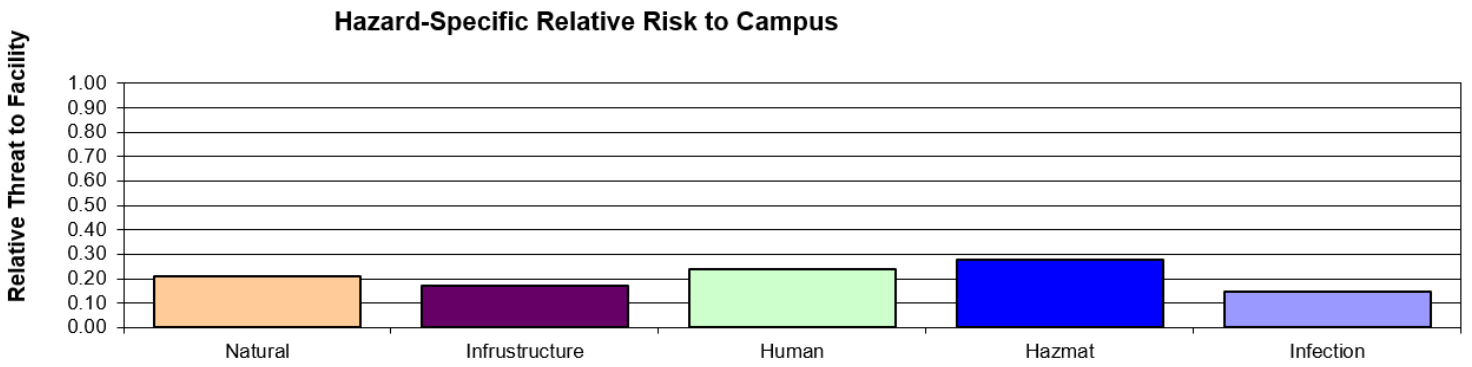
City of West Haven – Human-Related Incidents (accidental or intentional)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
MCI Trauma Transportation (Highway or Rail) Accident	1.0	1.0	1.0	1.0	2.0	3.0	2.0	**7%**	**14**
Mass Fatality Transportation (Air Travel) Accident	1.0	1.0	0.0	1.0	2.0	3.0	1.0	**15%**	**12**
MCI Trauma Active Shooter/Lone Wolf Terrorist	1.0	2.0	0.0	1.0	3.0	3.0	1.0	**19%**	**10**
MCI Blast Trauma / Terrorist	1.0	2.0	2.0	2.0	3.0	3.0	1.0	**24%**	**5**
Bomb Threat/Suspicious Package	1.0	2.0	1.0	2.0	3.0	3.0	1.0	**22%**	**7**
High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	1.0	1.0	0.0	0.0	2.0	2.0	1.0	**4%**	**15**
Large External Structure Fire	2.0	1.0	2.0	2.0	3.0	3.0	1.0	**44%**	**2**
Large Internal Structure Fire	2.0	1.0	2.0	2.0	3.0	3.0	1.0	**44%**	**2**
Hostage Situation	1.0	3.0	0.0	1.0	3.0	3.0	1.0	**20%**	**8**
Civil Unrest/Disturbance	1.0	3.0	1.0	1.0	3.0	3.0	1.0	**22%**	**7**
Labor Action/Staff Shortage	1.0	1.0	1.0	2.0	2.0	2.0	2.0	**19%**	**10**
Ransomware /Data Breach /Cyber Security	2.0	1.0	1.0	3.0	1.0	2.0	3.0	**41%**	**3**
Armed Robbery	1.0	1.0	0.0	1.0	2.0	3.0	1.0	**15%**	**12**
Armed Assault (Targeted/Gang Violence)	2.0	2.0	1.0	1.0	2.0	3.0	1.0	**37%**	**4**
Unarmed Assault (Workplace Violence)	1.0	2.0	0.0	1.0	1.0	2.0	1.0	**13%**	**13**
Average	**1.27**	**1.60**	**0.80**	**1.40**	**2.33**	**2.73**	**1.27**	**24%**	
		Risk = Probability * Severity							
		0.24	**0.42**	**0.56**					

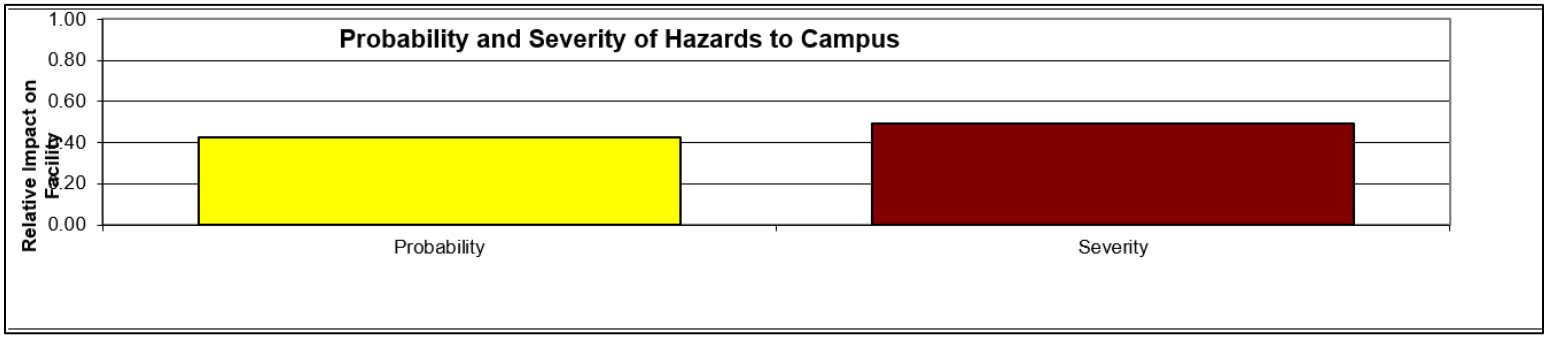
City of West Haven – Hazardous Materials									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Large External Spill	2.0	2.0	2.0	2.0	2.0	3.0	1.0	**44%**	**1**
Diesel Spill	2.0	1.0	2.0	1.0	1.0	3.0	1.0	**33%**	**2**
Propane	1.0	1.0	2.0	1.0	1.0	3.0	1.0	**17%**	**4**
Natural Gas	1.0	1.0	2.0	2.0	2.0	2.0	1.0	**19%**	**3**
Average	**1.50**	**1.25**	**2.00**	**1.50**	**1.50**	**2.75**	**1.00**	**28%**	
		Risk = Probability * Severity							
		0.28	**0.50**	**0.56**					

City of West Haven – Infectious Disease Outbreak (Epidemic/Pandemic)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
Level 2 – Affecting >20% of staff	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Influenza	2.0	2.0	0.0	2.0	1.0	2.0	2.0	**33%**	**1**
Ebola, Hanta, & Hemorrhagic Fevers	1.0	1.0	0.0	1.0	1.0	2.0	2.0	**13%**	**4**
SARS (zoological illnesses)	1.0	1.0	0.0	1.0	1.0	2.0	2.0	**13%**	**4**
Tuberculosis (TB)	1.0	1.0	0.0	1.0	1.0	2.0	1.0	**11%**	**7**
Blood Borne Illness; (HIV, AIDS, Hepatitis)	1.0	1.0	0.0	1.0	1.0	2.0	1.0	**11%**	**7**
Novel, MERS or unidentified illness	1.0	1.0	0.0	2.0	2.0	2.0	2.0	**17%**	**2**
MRSA, ESBL, and VRE	1.0	1.0	0.0	1.0	1.0	2.0	1.0	**11%**	**7**
Norovirus or other food borne illness	1.0	1.0	0.0	1.0	1.0	2.0	1.0	**11%**	**7**
Average	**1.13**	**1.13**	**0.00**	**1.25**	**1.13**	**2.00**	**1.50**	**15%**	
		Risk = Probability * Severity							
		0.15	**0.38**	**0.39**					

City of West Haven – Summary of Facility Hazards Analysis

	Natural	Infra-structure	Human	Hazmat	Infection	Total for Area
Probability	**0.52**	**0.31**	**0.42**	**0.50**	**0.38**	**0.42**
Severity	**0.41**	**0.54**	**0.56**	**0.56**	**0.39**	**0.49**
Hazard-Specific Relative Risk:	**0.21**	**0.17**	**0.24**	**0.28**	**0.15**	**0.21**





City of West Haven – Synopsis			
Event		**Risk**	**Rank**
Natural Events	Winter Storm (blizzard, big hail, ice rain, low temp)	33%	11
	Tornado >F3 (Fujita scale 158–206mph)	0%	51.5
	High Winds < F3 (Fujita scale 40–157mph)	56%	1.5
	Severe Heat / Extended Drought	56%	1.5
	Earthquake >5.0	41%	7
	Liquefaction	41%	7
	Flood (heavy rain, snow melt, dam inundation)	30%	13.5
	Wild Fire	15%	37.5
	Landslide	0%	51.5
	Avalanche	0%	51.5
	Lightning Thunderstorm >T3 (10–20 within 5 minutes)	30%	13.5
Infrastructure Failure	Electrical Power Failure >72 hrs.	17%	33
	Fuel Shortage >72 hrs.	20%	24
	Natural Gas Disruption >72 hrs.	11%	45
	Water System Disruption >3 hrs.	17%	33
	Sewer System Failure >3 hrs.	19%	28.5
	Steam/Boiler Failure	24%	16.5
	HVAC System Failure >3 hrs.	24%	16.5
	Smoke/Fire Alarm System Failure >3 hrs.	17%	33
	Fire Sprinkler Line Disruption	15%	37.5
	Elevator Disruption >3 hrs.	0%	51.5
	Internal Flooding	20%	24
	Backup Generator Failure >3 hrs.	20%	24
	Food Service Disruption >72 hrs.	20%	24
	Computer/Server System Disruption >3 hrs.	22%	18
	Communications (phone, PBX, cell service) >3 hrs.	24%	14.5

City of West Haven – Synopsis			
Event		**Risk**	**Rank**
Human Incidents	MCI Trauma Transportation (Highway or Rail) Accident	7%	48
	Mass Fatality Transportation (Air Travel) Accident	15%	37.5
	MCI Trauma Active Shooter/Lone Wolf Terrorist	19%	28.5
	MCI Blast Trauma / Terrorist	24%	16.5
	Bomb Threat/Suspicious Package	22%	20
	High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	4%	49
	Large External Structure Fire	44%	4
	Large Internal Structure Fire	44%	4
	Hostage Situation	20%	24
	Civil Unrest/Disturbance	22%	20
	Labor Action/Staff Shortage	19%	28.5
	Ransomware /Data Breach /Cyber Security	41%	7
	Armed Robbery	15%	37.5
	Armed Assault (Targeted/Gang Violence)	37%	9
	Unarmed Assault (Workplace Violence)	13%	41
HAZMAT	Large External Spill	44%	4
	Diesel Spill	33%	11
	Propane	17%	33
	Natural Gas	19%	28.5
Infectious Disease Outbreak	Influenza	33%	11
	Ebola, Hanta, & Hemorrhagic Fevers	13%	41
	SARS (zoological illnesses)	13%	41
	Tuberculosis (TB)	11%	45
	Blood Borne Illness; (HIV, AIDS, Hepatitis)	11%	45
	Novel, MERS or unidentified illness	17%	33
	MRSA, ESBL, and VRE	11%	45
	Norovirus or other food borne illness	11%	45

City of West Haven – Top Risk						
%	**Rank**	**Risk**	**Mitigation** Any activities that actually eliminate or reduce the occurrence of a disaster. It may also include long-term activities that reduce the effects of unavoidable disasters.	**Preparedness** Preparedness activities are necessary to the extent that mitigation measures have not or cannot prevent disasters.	**Response** Actions that are designed to provide emergency assistance for casualties. Seek to reduce the possibility of secondary damage and speed recovery.	**Recovery** Continue until all systems return to normal. Short-term returns vital life support to minimum operating standards. The long term may continue for a number of years after a disaster.
89%	1	Earthquake >5.0	Fasten shelves/bookcase/ files, Heavy objects away from beds, Flammable products and Hazardous chemicals should be stored away from heat sources and in tightly secured containers.	Annual Staff Training with Community and State resources "Great Utah Shakeout"	Keep calm, protect patients, Activate EOP plan, Conserve resources.	When Utility Service can be returned to normal. Work with community, city, county, state, federal and corporate directives in COOP plan
83%	2	MCI Blast Trauma / Terrorist				
78%	3	Liquefaction				
78%	4	MCI Trauma Active Shooter/Lone Wolf Terrorist				
72%	5	Unarmed Assault (Workplace Violence)				

Hooper Water Improvement District – Natural Events									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Winter Storm (blizzard, big hail, ice rain, low temp)	2.5	0.1	0.1	0.1	0.0	1.0	1.0	**11%**	**8**
Tornado >F3 (Fujita scale 158–206 mph)	2.0	0.0	0.0	2.0	1.0	1.0	0.0	**15%**	**6**
High Winds < F3 (Fujita scale 40–157 mph)	2.0	0.0	1.0	1.0	1.0	1.0	0.0	**15%**	**6**
Severe Heat / Extended Drought	3.0	2.5	1.0	1.0	1.0	1.0	2.0	**47%**	**1**
Earthquake >5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**13**
Liquefaction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**13**
Flood (heavy rain, snow melt, dam inundation)	1.0	1.0	0.0	0.0	0.0	0.0	0.0	**2%**	**9**
Wild Fire	1.5	1.0	1.0	1.0	0.0	1.0	0.0	**11%**	**7**
Landslide	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**13**
Avalanche	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**13**
Lightning Thunderstorm >T3 (10-20 within 5 minutes)	0.0	1.0	1.0	2.0	1.0	2.0	1.0	**0%**	**13**
Average	1.0	1.0	3.0	1.0	1.0	2.0	1.0	**17%**	**4**
		Risk = Probability * Severity							
		0.08	**0.36**	**0.23**					

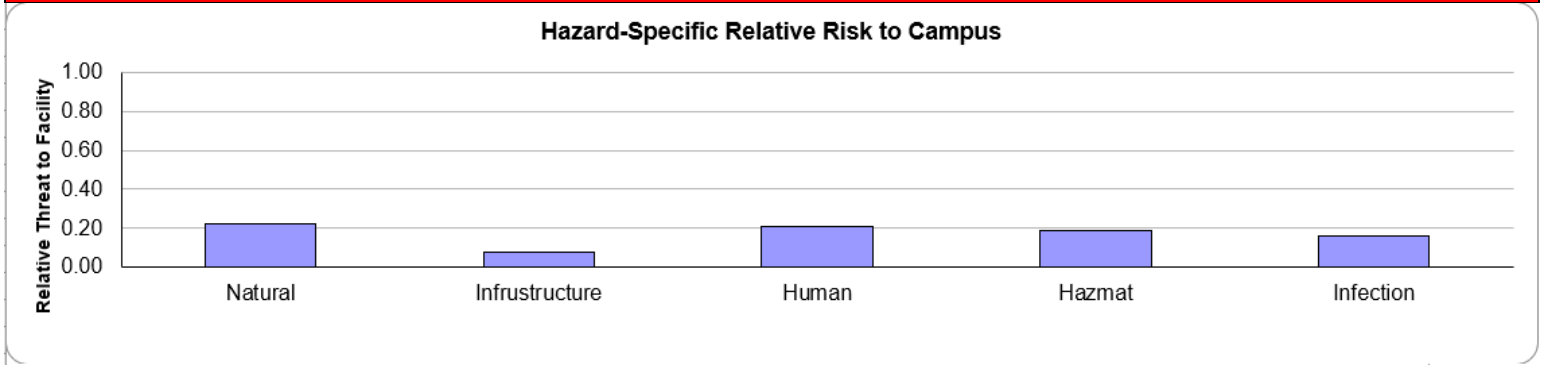
Hooper Water Improvement District – Infrastructure Failures									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Electrical Power Failure >72 hrs.	2.5	0.1	0.1	0.1	0.0	1.0	1.0	**11%**	**8**
Fuel Shortage >72 hrs.	2.0	0.0	0.0	2.0	1.0	1.0	0.0	**15%**	**6**
Natural Gas Disruption >72 hrs.	2.0	0.0	1.0	1.0	1.0	1.0	0.0	**15%**	**6**
Water System Disruption >3 hrs.	3.0	2.5	1.0	1.0	1.0	1.0	2.0	**47%**	**1**
Sewer System Failure >3 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**13**
Steam/Boiler Failure	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**13**
HVAC System Failure >3 hrs.	1.0	1.0	0.0	0.0	0.0	0.0	0.0	**2%**	**9**
Smoke/Fire Alarm System Failure >3 hrs.	1.5	1.0	1.0	1.0	0.0	1.0	0.0	**11%**	**7**
Fire Sprinkler Line Disruption	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**13**
Elevator Disruption >3 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**13**
Internal Flooding	0.0	1.0	1.0	2.0	1.0	2.0	1.0	**0%**	**13**
Backup Generator Failure >3 hrs.	1.0	1.0	3.0	1.0	1.0	2.0	1.0	**17%**	**4**
Food Service Disruption >72 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**12**
Computer/Server System Disruption >3 hrs.	2.0	1.0	2.0	2.0	1.0	1.0	3.0	**37%**	**2**
Communications (phone, PBX, cell service) >3 hrs.	1.0	1.0	1.0	2.0	0.0	3.0	3.0	**19%**	**3**
Average	**1.07**	**0.57**	**0.67**	**0.81**	**0.40**	**0.87**	**0.73**	**8%**	
		Risk = Probability * Severity							
		0.08	**0.36**	**0.23**					

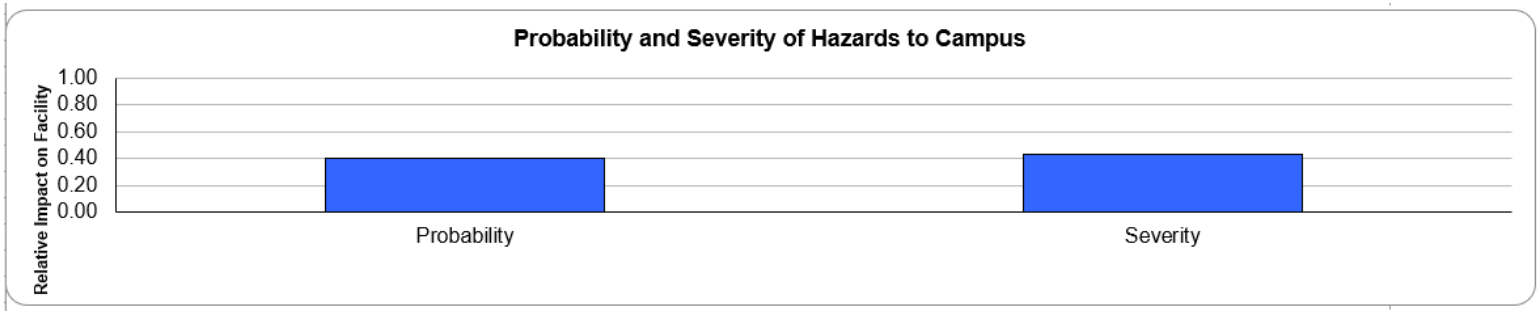
Hooper Water Improvement District – Human-Related Incidents (accidental or intentional)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
MCI Trauma Transportation (Highway or Rail) Accident	1.0	2.0	2.0	2.0	1.0	2.0	2.0	**13%**	**13**
Mass Fatality Transportation (Air Travel) Accident	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**15**
MCI Trauma Active Shooter/Lone Wolf Terrorist	1.0	3.0	1.0	2.0	2.0	2.0	1.0	**20%**	**7**
MCI Blast Trauma / Terrorist	1.0	3.0	2.0	2.0	2.0	2.0	1.0	**22%**	**5**
Bomb Threat/Suspicious Package	1.0	1.0	1.0	1.0	1.0	3.0	1.0	**15%**	**11**
High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	1.0	2.0	1.0	1.0	1.0	2.0	1.0	**7%**	**14**
Large External Structure Fire	2.0	2.0	2.0	3.0	2.0	2.0	1.0	**44%**	**2**
Large Internal Structure Fire	1.5	2.0	2.0	3.0	2.0	2.0	1.0	**33%**	**4**
Hostage Situation	1.0	3.0	1.0	2.0	2.0	1.0	1.0	**19%**	**8**
Civil Unrest/Disturbance	1.0	3.0	2.0	2.0	2.5	1.0	1.0	**21%**	**6**
Labor Action/Staff Shortage	2.0	3.0	1.0	2.0	1.0	2.0	3.0	**44%**	**2**
Ransomware /Data Breach /Cyber Security	3.0	1.0	0.0	3.0	2.0	1.0	1.0	**44%**	**2**
Armed Robbery	1.0	2.0	1.0	1.0	2.0	1.0	1.0	**15%**	**11**
Armed Assault (Targeted/Gang Violence)	1.0	2.0	1.0	1.0	2.0	1.0	1.0	**15%**	**11**
Unarmed Assault (Workplace Violence)	1.0	3.0	1.0	1.0	1.0	1.0	1.0	**15%**	**11**
Average	**1.23**	**2.13**	**1.20**	**1.73**	**1.57**	**1.53**	**1.13**	**21%**	
		Risk = Probability * Severity							
		0.21	**0.41**	**0.52**					

Hooper Water Improvement District – Hazardous Materials									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Large External Spill	1.0	2.0	2.0	2.0	3.0	1.0	1.0	**20%**	**2**
Diesel Spill	1.0	2.0	2.0	2.0	2.0	1.0	1.0	**19%**	**3**
Propane	1.0	2.0	1.0	1.0	2.0	1.0	1.0	**15%**	**4**
Natural Gas	1.0	3.0	3.0	1.0	3.0	1.0	1.0	**22%**	**1**
Average	**1.00**	**2.25**	**2.00**	**1.50**	**2.50**	**1.00**	**1.00**	**19%**	
		Risk = Probability * Severity							
		0.19	**0.33**	**0.57**					

Hooper Water Improvement District – Infectious Disease Outbreak (Epidemic/Pandemic)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
Level 2 – Affecting >20% of staff	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Influenza	2.0	2.0	0.0	1.0	1.0	2.5	1.0	**28%**	**1**
Ebola, Hanta, & Hemorrhagic Fevers	1.0	2.0	0.0	1.0	2.0	2.5	1.0	**16%**	**3**
SARS (zoological illnesses)	1.0	2.0	0.0	1.0	2.0	2.5	1.0	**16%**	**3**
Tuberculosis (TB)	1.0	2.0	0.0	1.0	1.0	2.5	1.0	**14%**	**6**
Blood Borne Illness; (HIV, AIDS, Hepatitis)	1.0	2.0	0.0	1.0	1.0	2.5	1.0	**14%**	**6**
Novel, MERS or unidentified illness	1.0	2.0	0.0	1.0	1.0	2.5	1.0	**14%**	**6**
MRSA, ESBL, and VRE	1.0	2.0	0.0	1.0	1.0	2.5	1.0	**14%**	**6**
Norovirus or other food borne illness	1.0	1.0	0.0	1.0	2.0	2.5	1.0	**14%**	**6**
Average	**1.13**	**1.88**	**0.00**	**1.00**	**1.38**	**2.50**	**1.00**	**16%**	
		Risk = Probability * Severity							
		0.16	**0.38**	**0.43**					

Hooper Water Improvement District – Summary of Facility Hazards Analysis						
	Natural	Infra-structure	Human	Hazmat	Infection	Total for Area
Probability	**0.55**	**0.36**	**0.41**	**0.33**	**0.38**	**0.41**
Severity	**0.40**	**0.23**	**0.52**	**0.57**	**0.43**	**0.43**
Hazard-Specific Relative Risk:	**0.22**	**0.08**	**0.21**	**0.19**	**0.16**	**0.17**





Hooper Water Improvement District – Synopsis			
Event		**Risk**	**Rank**
Natural Events	Winter Storm (blizzard, big hail, ice rain, low temp)	50%	2
	Tornado >F3 (Fujita scale 158–206mph)	3%	44
	High Winds < F3 (Fujita scale 40–157mph)	9%	41
	Severe Heat / Extended Drought	44%	6
	Earthquake >5.0	78%	1
	Liquefaction	24%	13
	Flood (heavy rain, snow melt, dam inundation)	44%	6
	Wild Fire	10%	40
	Landslide	7%	42.5
	Avalanche	0%	49.5
	Lightning Thunderstorm >T3 (10–20 within 5 minutes)	26%	12
Infrastructure Failure	Electrical Power Failure >72 hrs.	11%	39
	Fuel Shortage >72 hrs.	15%	28
	Natural Gas Disruption >72 hrs.	15%	28
	Water System Disruption >3 hrs.	47%	3
	Sewer System Failure >3 hrs.	0%	49.5
	Steam/Boiler Failure	0%	49.5
	HVAC System Failure >3 hrs.	2%	45
	Smoke/Fire Alarm System Failure >3 hrs.	11%	38
	Fire Sprinkler Line Disruption	0%	49.5
	Elevator Disruption >3 hrs.	0%	49.5
	Internal Flooding	0%	49.5
	Backup Generator Failure >3 hrs.	17%	22
	Food Service Disruption >72 hrs.	0%	49.5
	Computer/Server System Disruption >3 hrs.	37%	8
	Communications (phone, PBX, cell service) >3 hrs.	19%	19

Hooper Water Improvement District – Synopsis			
Event		**Risk**	**Rank**
Human Incidents	MCI Trauma Transportation (Highway or Rail) Accident	13%	37
	Mass Fatality Transportation (Air Travel) Accident	0%	49.5
	MCI Trauma Active Shooter/Lone Wolf Terrorist	20%	17.5
	MCI Blast Trauma / Terrorist	22%	14.5
	Bomb Threat/Suspicious Package	15%	28
	High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	7%	42.5
	Large External Structure Fire	44%	6
	Large Internal Structure Fire	33%	10
	Hostage Situation	19%	20
	Civil Unrest/Disturbance	21%	16
	Labor Action/Staff Shortage	44%	6
	Ransomware /Data Breach /Cyber Security	44%	6
	Armed Robbery	15%	28
	Armed Assault (Targeted/Gang Violence)	15%	28
	Unarmed Assault (Workplace Violence)	15%	28
HAZMAT	Large External Spill	20%	17.5
	Diesel Spill	19%	20
	Propane	15%	28
	Natural Gas	22%	14.5
Infectious Disease Outbreak	Influenza	28%	11
	Ebola, Hanta, & Hemorrhagic Fevers	16%	23.5
	SARS (zoological illnesses)	16%	23.5
	Tuberculosis (TB)	14%	34
	Blood Borne Illness; (HIV, AIDS, Hepatitis)	14%	34
	Novel, MERS or unidentified illness	14%	34
	MRSA, ESBL, and VRE	14%	34
	Norovirus or other food borne illness	14%	34

Hooper Water Improvement District – Top Risk						
%	**Rank**	**Risk**	**Mitigation** Any activities that actually eliminate or reduce the occurrence of a disaster. It may also include long-term activities that reduce the effects of unavoidable disasters.	**Preparedness** Preparedness activities are necessary to the extent that mitigation measures have not or cannot prevent disasters.	**Response** Actions that are designed to provide emergency assistance for casualties. Seek to reduce the possibility of secondary damage and speed recovery.	**Recovery** Continue until all systems return to normal. Short-term returns vital life support to minimum operating standards. The long term may continue for a number of years after a disaster.
	1	Earthquake >5.0				
	2	Liquefaction				
	3	Severe Heat/ Extended Drought				
	4	Winter Storm (Blizzard, big hail, ice rain, low temp)				

Hooper Water Improvement District – Top Risk						
%	**Rank**	**Risk**	**Mitigation** Any activities that actually eliminate or reduce the occurrence of a disaster. It may also include long-term activities that reduce the effects of unavoidable disasters.	**Preparedness** Preparedness activities are necessary to the extent that mitigation measures have not or cannot prevent disasters.	**Response** Actions that are designed to provide emergency assistance for casualties. Seek to reduce the possibility of secondary damage and speed recovery.	**Recovery** Continue until all systems return to normal. Short-term returns vital life support to minimum operating standards. The long term may continue for a number of years after a disaster.
78%	1	Earthquake >5.0	Fasten shelves/bookcase/files, Heavy objects away from desks, Flammable products and Hazardous chemicals should be stored away from heat sources and in tightly secured containers.	Staff Training with Community and State resources "Great Utah Shakeout"	Keep calm, protect patients, Activate EOP plan, Conserve resources.	When Utility Service can be returned to normal. Work with community, city, county, state, federal and corporate directives in COOP plan
72%	2	Liquefaction	Keep inhabitable buildings above the 4220 elevation, inform residents of risk			
72%	3	Ransomware /Data Breach /Cyber Security	Update policies and procedures for cyber security, participate in the State's cyber program, look into moving the City to an .org website			
67%	4	Sewer System Failure >3 hrs.	Get and regularly check backup generators, maintain replacement parts on hand			
64%	5	Winter Storm (blizzard, big hail, ice rain, low temp)	Maintain equipment, train employees, have adequate supplies stocked			

Taylor–West Weber Water Improvement District – Natural Events									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Winter Storm (blizzard, big hail, ice rain, low temp)	0.1	0.1	0.1	0.1	0.0	3.0	3.0	**1%**	**8**
Tornado >F3 (Fujita scale 158–206 mph)	1.0	0.1	1.0	0.5	0.0	2.0	2.0	**10%**	**7**
High Winds < F3 (Fujita scale 40–157 mph)	3.0	1.0	1.0	1.0	2.0	1.0	2.0	**44%**	**4**
Severe Heat / Extended Drought	3.0	3.0	3.0	3.0	2.0	2.0	1.0	**78%**	**1**
Earthquake >5.0	1.0	2.0	3.0	2.0	2.0	2.0	2.0	**24%**	**5**
Liquefaction	3.0	1.0	1.0	1.0	2.0	2.0	1.0	**44%**	**4**
Flood (heavy rain, snow melt, dam inundation)	0.0	1.0	1.0	0.5	1.0	1.0	1.0	**0%**	**9**
Wild Fire	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**11**
Landslide	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**11**
Avalanche	2.0	1.0	1.0	1.0	1.0	1.0	1.0	**22%**	**6**
Lightning Thunderstorm >T3 (10-20 within 5 minutes)	**1.47**	**0.93**	**1.10**	**0.92**	**1.00**	**1.45**	**1.45**	**19%**	
Average	0.1	0.1	0.1	0.1	0.0	3.0	3.0	**1%**	**8**
		Risk = Probability * Severity							
		0.19	**0.49**	**0.38**					

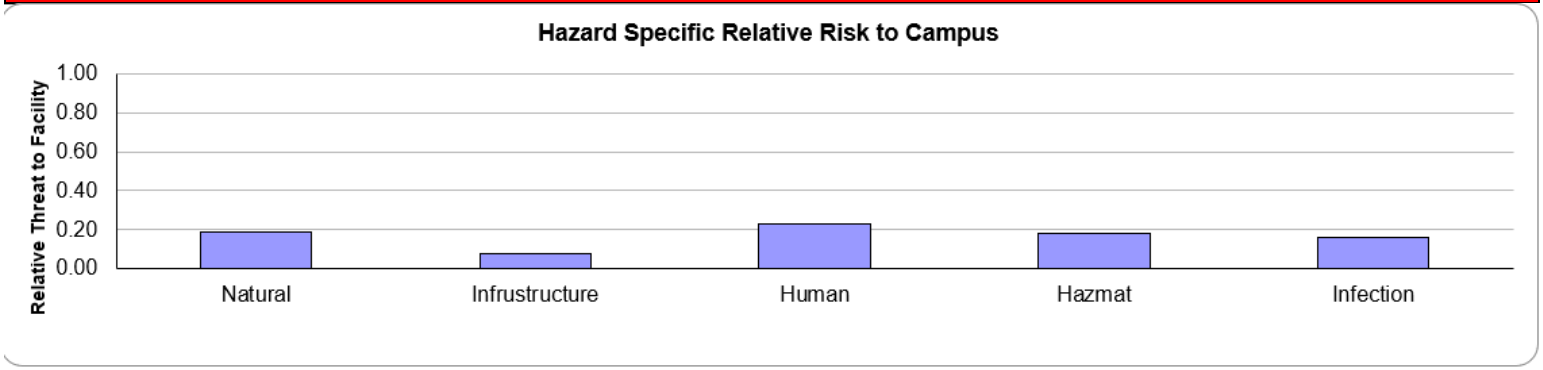
Taylor–West Weber Water Improvement District – Infrastructure Failures									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Electrical Power Failure >72 hrs.	2.5	0.1	0.1	0.1	0.0	1.0	1.0	**11%**	**7**
Fuel Shortage >72 hrs.	2.0	0.0	0.0	2.0	1.0	1.0	0.0	**15%**	**6**
Natural Gas Disruption >72 hrs.	1.0	0.0	1.0	1.0	1.0	1.0	0.0	**7%**	**9**
Water System Disruption >3 hrs.	3.0	2.5	1.0	1.0	1.0	1.0	2.0	**47%**	**1**
Sewer System Failure >3 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**13**
Steam/Boiler Failure	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**13**
HVAC System Failure >3 hrs.	1.0	1.0	0.0	0.0	0.0	0.0	0.0	**2%**	**10**
Smoke/Fire Alarm System Failure >3 hrs.	1.0	1.0	1.0	1.0	0.0	1.0	0.0	**7%**	**9**
Fire Sprinkler Line Disruption	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**13**
Elevator Disruption >3 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**13**
Internal Flooding	1.0	1.0	1.0	2.0	1.0	2.0	1.0	**15%**	**6**
Backup Generator Failure >3 hrs.	1.0	1.0	3.0	1.0	1.0	2.0	1.0	**17%**	**4**
Food Service Disruption >72 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**12**
Computer/Server System Disruption >3 hrs.	2.0	1.0	2.0	2.0	1.0	1.0	3.0	**37%**	**2**
Communications (phone, PBX, cell service) >3 hrs.	1.0	1.0	1.0	2.0	0.0	3.0	3.0	**19%**	**3**
Average	**1.03**	**0.57**	**0.67**	**0.81**	**0.40**	**0.87**	**0.73**	**8%**	
		Risk = Probability * Severity							
		0.08	**0.34**	**0.23**					

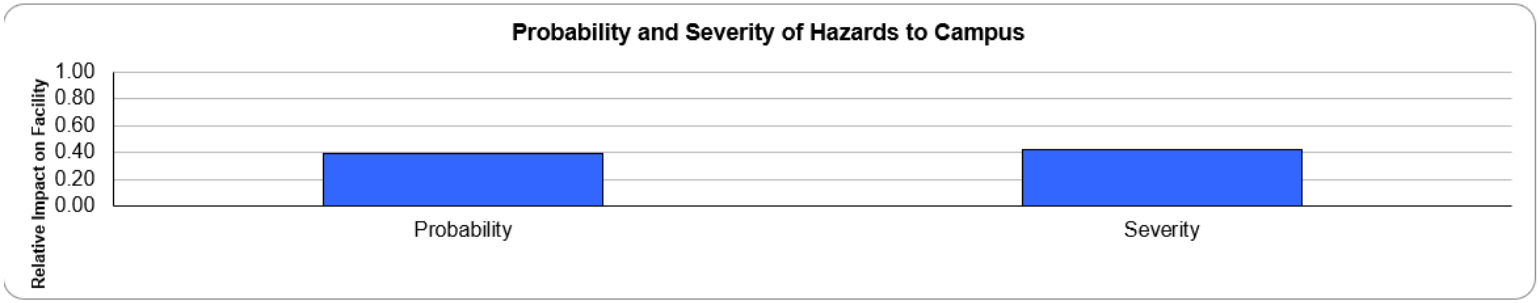
Taylor–West Weber Water Improvement District – Human-Related Incidents (accidental or intentional)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
MCI Trauma Transportation (Highway or Rail) Accident	1.0	3.0	1.0	1.0	1.0	2.0			
Mass Fatality Transportation (Air Travel) Accident	1.0	3.0	3.0	1.0	1.0	1.0			
MCI Trauma Active Shooter/Lone Wolf Terrorist	1.0	3.0	1.0	1.0	2.0	1.0			
MCI Blast Trauma / Terrorist	1.0	3.0	1.0	1.0	2.0	1.0			
Bomb Threat/Suspicious Package	1.0	1.0	1.0	1.0	1.0	1.0			
High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	1.0	2.0	1.0	1.0	1.0	1.0			
Large External Structure Fire	2.0	2.0	2.0	3.0	2.0	1.0			
Large Internal Structure Fire	2.0	2.0	2.0	3.0	2.0	1.0			
Hostage Situation	0.5	3.0	1.0	1.0	2.0	1.0			
Civil Unrest/Disturbance	1.0	3.0	2.0	2.0	2.5	1.0			
Labor Action/Staff Shortage	2.0	3.0	1.0	2.0	1.0	3.0			
Ransomware /Data Breach /Cyber Security	3.0	1.0	0.0	3.0	3.0	3.0			
Armed Robbery	1.0	1.0	1.0	1.0	2.0	1.0			
Armed Assault (Targeted/Gang Violence)	1.0	2.0	1.0	1.0	2.0	1.0			
Unarmed Assault (Workplace Violence)	1.0	2.0	1.0	1.0	2.0	1.0			
Average	**1.30**	**2.27**	**1.27**	**1.53**	**1.77**	**1.33**			
		Risk = Probability * Severity							
		0.23	**0.43**	**0.53**					

Taylor–West Weber Water Improvement District – Hazardous Materials									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Large External Spill	1.0	2.0	2.0	1.0	3.0	1.0	1.0	**19%**	**2**
Diesel Spill	1.0	2.0	2.0	1.0	2.0	1.0	1.0	**17%**	**3**
Propane	1.0	2.0	1.0	1.0	2.0	1.0	1.0	**15%**	**4**
Natural Gas	1.0	3.0	3.0	2.0	3.0	1.0	1.0	**24%**	**1**
Average	**1.00**	**2.25**	**2.00**	**1.25**	**2.50**	**1.00**	**1.00**	**19%**	
		Risk = Probability * Severity							
		0.19	**0.33**	**0.56**					

Taylor–West Weber Water Improvement District – Infectious Disease Outbreak (Epidemic/Pandemic)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
Level 2 – Affecting >20% of staff	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Influenza	2.0	2.0	0.0	1.0	1.0	2.5	1.0	**28%**	**1**
Ebola, Hanta, & Hemorrhagic Fevers	1.0	2.0	0.0	1.0	2.0	2.5	1.0	**16%**	**3**
SARS (zoological illnesses)	1.0	2.0	0.0	1.0	2.0	2.5	1.0	**16%**	**3**
Tuberculosis (TB)	1.0	2.0	0.0	1.0	1.0	2.5	1.0	**14%**	**6**
Blood Borne Illness; (HIV, AIDS, Hepatitis)	1.0	2.0	0.0	1.0	1.0	2.5	1.0	**14%**	**6**
Novel, MERS or unidentified illness	1.0	2.0	0.0	1.0	1.0	2.5	1.0	**14%**	**6**
MRSA, ESBL, and VRE	1.0	2.0	0.0	1.0	1.0	2.5	1.0	**14%**	**6**
Norovirus or other food borne illness	1.0	1.0	0.0	1.0	2.0	2.5	1.0	**14%**	**6**
Average	**1.13**	**1.88**	**0.00**	**1.00**	**1.38**	**2.50**	**1.00**	**16%**	
		Risk = Probability * Severity							
		0.16	**0.38**	**0.43**					

Taylor–West Weber Water Improvement District – Summary of Facility Hazards Analysis						
	Natural	Infra-structure	Human	Hazmat	Infection	Total for Area
Probability	**0.49**	**0.34**	**0.43**	**0.33**	**0.38**	**0.39**
Severity	**0.38**	**0.23**	**0.53**	**0.56**	**0.43**	**0.42**
Hazard-Specific Relative Risk:	**0.19**	**0.08**	**0.23**	**0.19**	**0.16**	**0.17**





Taylor–West Weber Water Improvement District – Synopsis			
Event		**Risk**	**Rank**
Natural Events	Winter Storm (blizzard, big hail, ice rain, low temp)	50%	3
	Tornado >F3 (Fujita scale 158–206mph)	1%	45
	High Winds < F3 (Fujita scale 40–157mph)	10%	39
	Severe Heat / Extended Drought	44%	6.5
	Earthquake >5.0	78%	1
	Liquefaction	24%	12.5
	Flood (heavy rain, snow melt, dam inundation)	44%	6.5
	Wild Fire	0%	46
	Landslide	0%	50
	Avalanche	0%	50
	Lightning Thunderstorm >T3 (10–20 within 5 minutes)	22%	14
Infrastructure Failure	Electrical Power Failure >72 hrs.	11%	38
	Fuel Shortage >72 hrs.	15%	27
	Natural Gas Disruption >72 hrs.	7%	42.5
	Water System Disruption >3 hrs.	47%	5
	Sewer System Failure >3 hrs.	0%	50
	Steam/Boiler Failure	0%	50
	HVAC System Failure >3 hrs.	2%	44
	Smoke/Fire Alarm System Failure >3 hrs.	7%	42.5
	Fire Sprinkler Line Disruption	0%	50
	Elevator Disruption >3 hrs.	0%	50
	Internal Flooding	15%	27
	Backup Generator Failure >3 hrs.	17%	20.5
	Food Service Disruption >72 hrs.	0%	50
	Computer/Server System Disruption >3 hrs.	37%	9
	Communications (phone, PBX, cell service) >3 hrs.	19%	16

Taylor–West Weber Water Improvement District – Synopsis			
Event		**Risk**	**Rank**
Human Incidents	MCI Trauma Transportation (Highway or Rail) Accident	11%	36.5
	Mass Fatality Transportation (Air Travel) Accident	19%	17
	MCI Trauma Active Shooter/Lone Wolf Terrorist	17%	20.5
	MCI Blast Trauma / Terrorist	17%	20.5
	Bomb Threat/Suspicious Package	11%	36.5
	High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	9%	40
	Large External Structure Fire	41%	8.5
	Large Internal Structure Fire	41%	8.5
	Hostage Situation	8%	41
	Civil Unrest/Disturbance	21%	15
	Labor Action/Staff Shortage	48%	4
	Ransomware /Data Breach /Cyber Security	72%	2
	Armed Robbery	13%	35
	Armed Assault (Targeted/Gang Violence)	15%	27
	Unarmed Assault (Workplace Violence)	15%	27
HAZMAT	Large External Spill	19%	17
	Diesel Spill	17%	20.5
	Propane	15%	27
	Natural Gas	24%	12.5
Infectious Disease Outbreak	Influenza	28%	11
	Ebola, Hanta, & Hemorrhagic Fevers	16%	23.5
	SARS (zoological illnesses)	16%	23.5
	Tuberculosis (TB)	14%	32
	Blood Borne Illness; (HIV, AIDS, Hepatitis)	14%	32
	Novel, MERS or unidentified illness	14%	32
	MRSA, ESBL, and VRE	14%	32
	Norovirus or other food borne illness	14%	32

Taylor–West Weber Water Improvement District – Top Risk						
%	**Rank**	**Risk**	**Mitigation** Any activities that actually eliminate or reduce the occurrence of a disaster. It may also include long-term activities that reduce the effects of unavoidable disasters.	**Preparedness** Preparedness activities are necessary to the extent that mitigation measures have not or cannot prevent disasters.	**Response** Actions that are designed to provide emergency assistance for casualties. Seek to reduce the possibility of secondary damage and speed recovery.	**Recovery** Continue until all systems return to normal. Short-term returns vital life support to minimum operating standards. The long term may continue for a number of years after a disaster.
78%	1	Earthquake >5.0	Fasten shelves/bookcase/ files, Heavy objects away from desks, Flammable products and Hazardous chemicals should be stored away from heat sources and in tightly secured containers.	Staff Training with Community and State resources "Great Utah Shakeout"	Keep calm, protect patients, Activate EOP plan, Conserve resources.	When Utility Service can be returned to normal. Work with community, city, county, state, federal and corporate directives in COOP plan
72%	2	Liquefaction	Keep inhabitable buildings above the 4220 elevation, inform residents of risk			
72%	3	Ransomware /Data Breach /Cyber Security	Update policies and procedures for cyber security, participate in the State's cyber program, look into moving the City to a .org website			
67%	4	Sewer System Failure >3 hrs.	Get and regularly check backup generators, maintain replacement parts on hand			
64%	5	Winter Storm (blizzard, big hail, ice rain, low temp)	Maintain equipment, train employees, have adequate supplies stocked			

Weber Human Services – Natural Events									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Winter Storm (blizzard, big hail, ice rain, low temp)	1.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**8**
Tornado >F3 (Fujita scale 158–206 mph)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**8**
High Winds < F3 (Fujita scale 40–157 mph)	1.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**8**
Severe Heat / Extended Drought	1.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**8**
Earthquake >5.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**8**
Liquefaction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**8**
Flood (heavy rain, snow melt, dam inundation)	1.0	1.0	3.0	3.0	0.0	0.0	0.0	**13%**	**1**
Wild Fire	1.0	1.0	1.0	1.0	0.0	0.0	0.0	**6%**	**3**
Landslide	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**8**
Avalanche	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**8**
Lightning Thunderstorm >T3 (10-20 within 5 minutes)	1.0	1.0	1.0	1.0	1.0	0.0	0.0	**7%**	**2**
Average	**0.64**	**0.27**	**0.45**	**0.45**	**0.09**	**0.00**	**0.00**	**1%**	
		Risk = Probability * Severity							
		0.01	**0.21**	**0.07**					

Weber Human Services – Infrastructure Failures									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Electrical Power Failure >72 hrs.	3.0	3.0	3.0	3.0	3.0	0.0	0.0	**67%**	**2**
Fuel Shortage >72 hrs.	1.0	1.0	1.0	1.0	1.0	0.0	0.0	**7%**	**10**
Natural Gas Disruption >72 hrs.	1.0	1.0	1.0	1.0	1.0	0.0	0.0	**7%**	**10**
Water System Disruption >3 hrs.	1.0	1.0	1.0	1.0	1.0	0.0	0.0	**7%**	**10**
Sewer System Failure >3 hrs.	1.0	1.0	1.0	1.0	1.0	0.0	0.0	**7%**	**10**
Steam/Boiler Failure	2.0	2.0	2.0	2.0	2.0	0.0	0.0	**30%**	**3**
HVAC System Failure >3 hrs.	1.0	1.0	1.0	1.0	1.0	0.0	0.0	**7%**	**10**
Smoke/Fire Alarm System Failure >3 hrs.	1.0	1.0	1.0	1.0	1.0	0.0	0.0	**7%**	**10**
Fire Sprinkler Line Disruption	1.0	1.0	1.0	1.0	1.0	0.0	0.0	**7%**	**10**
Elevator Disruption >3 hrs.	1.0	1.0	1.0	1.0	1.0	0.0	0.0	**7%**	**10**
Internal Flooding	1.0	1.0	1.0	1.0	1.0	2.0	0.0	**11%**	**5**
Backup Generator Failure >3 hrs.	3.0	3.0	3.0	3.0	3.0	0.0	0.0	**67%**	**2**
Food Service Disruption >72 hrs.	1.0	1.0	1.0	1.0	0.0	0.0	0.0	**6%**	**14**
Computer/Server System Disruption >3 hrs.	1.0	1.0	1.0	1.0	0.0	2.0	2.0	**13%**	**4**
Communications (phone, PBX, cell service) >3 hrs.	1.0	1.0	1.0	1.0	0.0	0.0	0.0	**6%**	**16**
Average	**1.33**	**1.33**	**1.33**	**1.33**	**1.13**	**0.27**	**0.13**	**14%**	
		Risk = Probability * Severity							
		0.14	**0.44**	**0.31**					

Weber Human Services – Human-Related Incidents (accidental or intentional)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
MCI Trauma Transportation (Highway or Rail) Accident	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**10**
Mass Fatality Transportation (Air Travel) Accident	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**10**
MCI Trauma Active Shooter/Lone Wolf Terrorist	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**10**
MCI Blast Trauma / Terrorist	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**10**
Bomb Threat/Suspicious Package	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**10**
High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	1.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**10**
Large External Structure Fire	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**10**
Large Internal Structure Fire	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**10**
Hostage Situation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**10**
Civil Unrest/Disturbance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**10**
Labor Action/Staff Shortage	2.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**10**
Ransomware /Data Breach /Cyber Security	1.0	1.0	1.0	1.0	1.0	0.0	0.0	**7%**	**4**
Armed Robbery	1.0	1.0	1.0	1.0	1.0	0.0	0.0	**7%**	**4**
Armed Assault (Targeted/Gang Violence)	2.0	2.0	2.0	2.0	2.0	0.0	0.0	**30%**	**2**
Unarmed Assault (Workplace Violence)	2.0	2.0	2.0	2.0	2.0	0.0	0.0	**30%**	**2**
Average	**0.60**	**0.40**	**0.40**	**0.40**	**0.40**	**0.00**	**0.00**	**2%**	

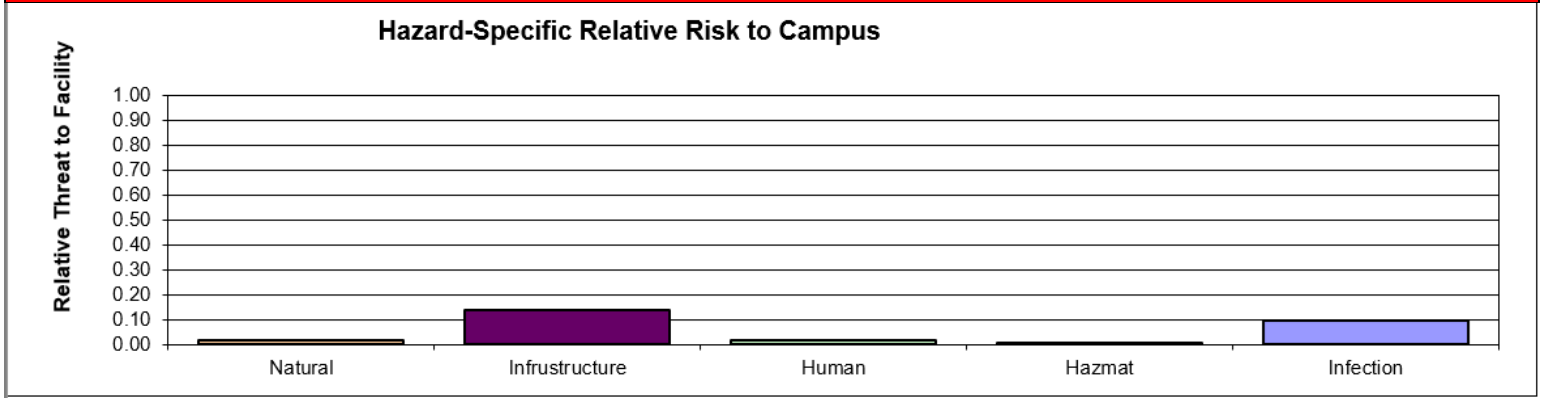
Risk = Probability * Severity

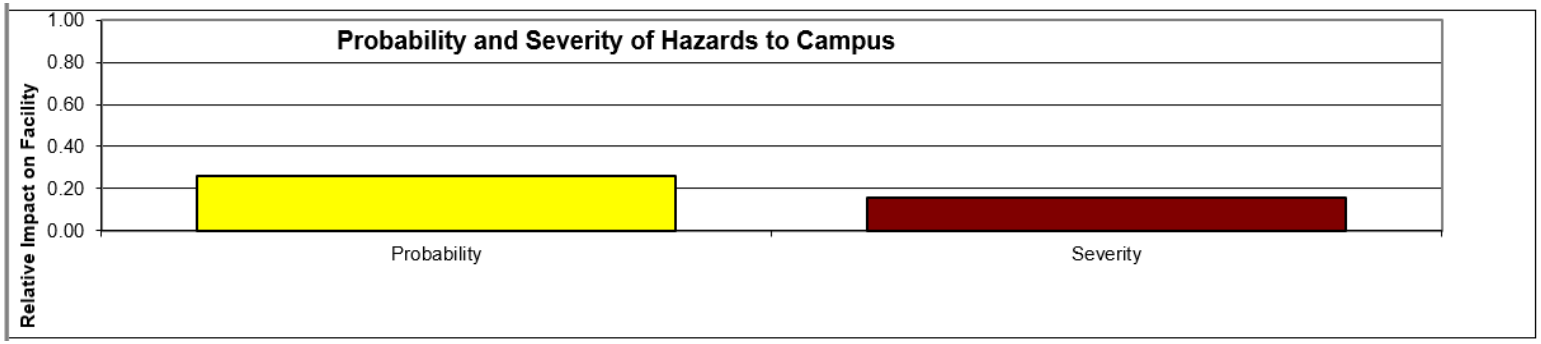
Weber Human Services – Hazardous Materials									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Large External Spill	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**3**
Diesel Spill	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**3**
Propane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**3**
Natural Gas	1.0	1.0	1.0	1.0	1.0	0.0	0.0	**7%**	**1**
Average	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.00**	**0.00**	**0%**	
		Risk = Probability * Severity							
		0.00	**0.08**	**0.06**					

Weber Human Services – Infectious Disease Outbreak (Epidemic/Pandemic)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
Level 2 – Affecting >20% of staff	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Influenza		1.0	1.0	1.0	1.0	1.0	0.0	0.0	**7%**
Ebola, Hanta, & Hemorrhagic Fevers		1.0	1.0	1.0	1.0	1.0	0.0	0.0	**7%**
SARS (zoological illnesses)		1.0	1.0	1.0	1.0	1.0	0.0	0.0	**7%**
Tuberculosis (TB)		2.0	2.0	2.0	2.0	2.0	0.0	0.0	**30%**
Blood Borne Illness; (HIV, AIDS, Hepatitis)		1.0	1.0	1.0	1.0	1.0	0.0	0.0	**7%**
Novel, MERS or unidentified illness		1.0	1.0	1.0	1.0	1.0	0.0	0.0	**7%**
MRSA, ESBL, and VRE		1.0	1.0	1.0	1.0	1.0	0.0	0.0	**7%**
Norovirus or other food borne illness		1.0	1.0	1.0	1.0	1.0	0.0	0.0	**7%**
Average		**1.13**	**1.13**	**1.13**	**1.13**	**1.13**	**0.00**	**0.00**	**9%**
		Risk = Probability * Severity							
		0.09	**0.38**	**0.25**					

Weber Human Services – Summary of Facility Hazards Analysis

	Natural	Infra-structure	Human	Hazmat	Infection	Total for Area
Probability	**0.21**	**0.44**	**0.20**	**0.08**	**0.38**	**0.26**
Severity	**0.07**	**0.31**	**0.09**	**0.06**	**0.25**	**0.15**
Hazard-Specific Relative Risk:	**0.01**	**0.14**	**0.02**	**0.00**	**0.09**	**0.04**





Weber Human Services – Synopsis			
Event		**Risk**	**Rank**
Natural Events	Winter Storm (blizzard, big hail, ice rain, low temp)	2%	19
	Tornado >F3 (Fujita scale 158–206mph)	0%	49.5
	High Winds < F3 (Fujita scale 40–157mph)	2%	19
	Severe Heat / Extended Drought	2%	19
	Earthquake >5.0	2%	19
	Liquefaction	1%	34
	Flood (heavy rain, snow melt, dam inundation)	1%	34
	Wild Fire	6%	15
	Landslide	0%	49.5
	Avalanche	0%	49.5
	Lightning Thunderstorm >T3 (10–20 within 5 minutes)	1%	34
Infrastructure Failure	Electrical Power Failure >72 hrs.	2%	19
	Fuel Shortage >72 hrs.	1%	34
	Natural Gas Disruption >72 hrs.	1%	34
	Water System Disruption >3 hrs.	1%	34
	Sewer System Failure >3 hrs.	1%	34
	Steam/Boiler Failure	2%	19
	HVAC System Failure >3 hrs.	2%	19
	Smoke/Fire Alarm System Failure >3 hrs.	1%	34
	Fire Sprinkler Line Disruption	1%	34
	Elevator Disruption >3 hrs.	1%	34
	Internal Flooding	1%	34
	Backup Generator Failure >3 hrs.	100%	1.5
	Food Service Disruption >72 hrs.	1%	34
	Computer/Server System Disruption >3 hrs.	100%	1.5
	Communications (phone, PBX, cell service) >3 hrs.	1%	32

Weber Human Services – Synopsis			
Event		**Risk**	**Rank**
Human Incidents	MCI Trauma Transportation (Highway or Rail) Accident	1%	34
	Mass Fatality Transportation (Air Travel) Accident	1%	34
	MCI Trauma Active Shooter/Lone Wolf Terrorist	50%	7
	MCI Blast Trauma / Terrorist	1%	34
	Bomb Threat/Suspicious Package	50%	7
	High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	50%	7
	Large External Structure Fire	0%	49.5
	Large Internal Structure Fire	0%	49.5
	Hostage Situation	1%	34
	Civil Unrest/Disturbance	1%	34
	Labor Action/Staff Shortage	1%	34
	Ransomware /Data Breach /Cyber Security	1%	34
	Armed Robbery	7%	13.5
	Armed Assault (Targeted/Gang Violence)	50%	7
	Unarmed Assault (Workplace Violence)	50%	7
HAZMAT	Large External Spill	0%	49.5
	Diesel Spill	0%	49.5
	Propane	0%	49.5
	Natural Gas	30%	12
Infectious Disease Outbreak	Influenza	50%	7
	Ebola, Hanta, & Hemorrhagic Fevers	1%	34
	SARS (zoological illnesses)	1%	34
	Tuberculosis (TB)	50%	7
	Blood Borne Illness; (HIV, AIDS, Hepatitis)	50%	7
	Novel, MERS or unidentified illness	50%	7
	MRSA, ESBL, and VRE	7%	13.5
	Norovirus or other food borne illness	1%	34

Weber Human Services – Top Risk						
%	**Rank**	**Risk**	**Mitigation** Any activities that actually eliminate or reduce the occurrence of a disaster. It may also include long-term activities that reduce the effects of unavoidable disasters.	**Preparedness** Preparedness activities are necessary to the extent that mitigation measures have not or cannot prevent disasters.	**Response** Actions that are designed to provide emergency assistance for casualties. Seek to reduce the possibility of secondary damage and speed recovery.	**Recovery** Continue until all systems return to normal. Short-term returns vital life support to minimum operating standards. The long term may continue for a number of years after a disaster.
89%	1	Earthquake >5.0	Fasten shelves/bookcase/ files, Heavy objects away from beds, Flammable products and Hazardous chemicals should be stored away from heat sources and in tightly secured containers.	Annual Staff Training with Community and State resources "Great Utah Shakeout"	Keep calm, protect patients, Activate EOP plan, Conserve resources.	When Utility Service can be returned to normal. Work with community, city, county, state, federal and corporate directives in COOP plan
83%	2	MCI Blast Trauma / Terrorist				
78%	3	Liquefaction				
78%	4	MCI Trauma Active Shooter/Lone Wolf Terrorist				
72%	5	Unarmed Assault (Workplace Violence)				

Weber–Morgan Health Department – Natural Events									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Winter Storm (blizzard, big hail, ice rain, low temp)	3.0	2.0	2.0	2.0	2.0	1.0	0.0	**50%**	**4**
Tornado >F3 (Fujita scale 158–206 mph)	1.0	1.0	1.0	1.0	1.0	2.0	0.0	**11%**	**10**
High Winds < F3 (Fujita scale 40–157 mph)	3.0	1.0	1.0	1.0	1.0	1.0	0.0	**28%**	**7**
Severe Heat / Extended Drought	3.0	2.0	2.0	1.0	2.0	2.0	0.0	**50%**	**4**
Earthquake >5.0	3.0	3.0	2.0	2.0	3.0	1.0	0.0	**61%**	**2**
Liquefaction	3.0	3.0	2.0	2.0	3.0	1.0	0.0	**61%**	**2**
Flood (heavy rain, snow melt, dam inundation)	3.0	1.0	2.0	2.0	1.0	1.0	0.0	**39%**	**6**
Wild Fire	3.0	2.0	1.0	1.0	2.0	1.0	0.0	**39%**	**6**
Landslide	2.0	1.0	0.0	0.0	1.0	2.0	0.0	**15%**	**9**
Avalanche	2.0	1.0	0.0	0.0	1.0	2.0	0.0	**15%**	**9**
Lightning Thunderstorm >T3 (10-20 within 5 minutes)	1.0	1.0	0.0	0.0	0.0	1.0	0.0	**4%**	**11**
Average	**2.45**	**1.64**	**1.18**	**1.09**	**1.55**	**1.36**	**0.00**	**31%**	
		Risk = Probability * Severity							
		0.31	**0.82**	**0.38**					

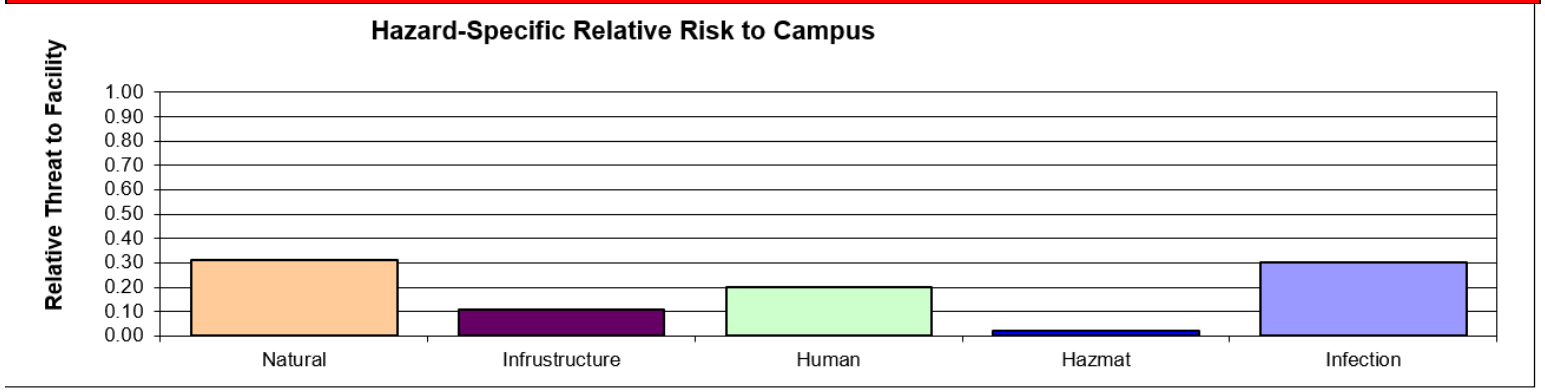
Weber–Morgan Health Department – Infrastructure Failures									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Electrical Power Failure >72 hrs.	2.0	0.0	1.0	1.0	1.0	1.0	0.0	**15%**	**3**
Fuel Shortage >72 hrs.	1.0	0.0	1.0	2.0	1.0	2.0	0.0	**11%**	**9**
Natural Gas Disruption >72 hrs.	1.0	0.0	1.0	1.0	1.0	3.0	0.0	**11%**	**9**
Water System Disruption >3 hrs.	1.0	0.0	0.0	1.0	1.0	3.0	0.0	**9%**	**12**
Sewer System Failure >3 hrs.	1.0	0.0	1.0	1.0	1.0	3.0	0.0	**11%**	**9**
Steam/Boiler Failure	1.0	0.0	1.0	1.0	1.0	2.0	0.0	**9%**	**12**
HVAC System Failure >3 hrs.	2.0	0.0	0.0	1.0	1.0	2.0	0.0	**15%**	**3**
Smoke/Fire Alarm System Failure >3 hrs.	1.0	0.0	1.0	3.0	1.0	3.0	0.0	**15%**	**3**
Fire Sprinkler Line Disruption	1.0	0.0	1.0	3.0	1.0	3.0	0.0	**15%**	**3**
Elevator Disruption >3 hrs.	1.0	0.0	0.0	0.0	1.0	3.0	0.0	**7%**	**14**
Internal Flooding	1.0	0.0	1.0	1.0	1.0	2.0	0.0	**9%**	**12**
Backup Generator Failure >3 hrs.	1.0	0.0	1.0	1.0	1.0	3.0	0.0	**11%**	**9**
Food Service Disruption >72 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**14**
Computer/Server System Disruption >3 hrs.	1.0	0.0	0.0	3.0	1.0	3.0	0.0	**13%**	**6**
Communications (phone, PBX, cell service) >3 hrs.	1.0	0.0	0.0	3.0	1.0	3.0	0.0	**13%**	**6**
Average	**1.07**	**0.00**	**0.60**	**1.47**	**0.93**	**2.40**	**0.00**	**11%**	
		Risk = Probability * Severity							
		0.11	**0.36**	**0.30**					

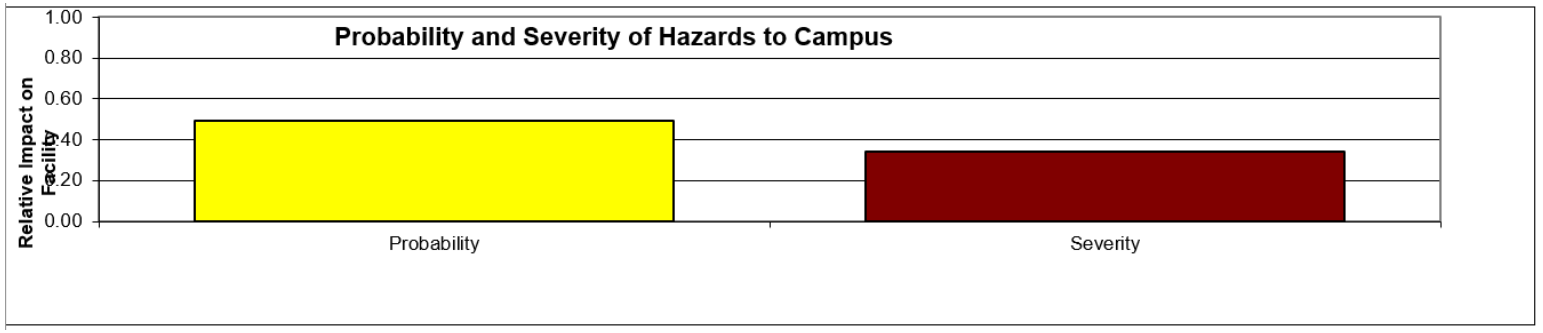
Weber–Morgan Health Department – Human-Related Incidents (accidental or intentional)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
MCI Trauma Transportation (Highway or Rail) Accident	1.0	1.0	2.0	3.0	3.0	2.0	0.0	**13%**	**13**
Mass Fatality Transportation (Air Travel) Accident	1.0	1.0	2.0	3.0	2.0	2.0	0.0	**19%**	**6**
MCI Trauma Active Shooter/Lone Wolf Terrorist	1.0	1.0	2.0	3.0	3.0	2.0	0.0	**20%**	**4**
MCI Blast Trauma / Terrorist	1.0	3.0	3.0	3.0	1.0	2.0	0.0	**22%**	**3**
Bomb Threat/Suspicious Package	1.0	0.0	2.0	3.0	1.0	3.0	0.0	**17%**	**9**
High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	1.0	0.0	0.0	0.0	0.0	3.0	0.0	**-6%**	**15**
Large External Structure Fire	2.0	0.0	1.0	1.0	1.0	1.0	0.0	**15%**	**11**
Large Internal Structure Fire	2.0	1.0	3.0	3.0	1.0	1.0	0.0	**33%**	**2**
Hostage Situation	1.0	2.0	0.0	3.0	1.0	3.0	0.0	**17%**	**9**
Civil Unrest/Disturbance	2.0	0.0	0.0	1.0	1.0	3.0	0.0	**19%**	**6**
Labor Action/Staff Shortage	1.0	0.0	0.0	1.0	1.0	3.0	0.0	**9%**	**14**
Ransomware /Data Breach /Cyber Security	3.0	0.0	0.0	3.0	1.0	3.0	0.0	**39%**	**1**
Armed Robbery	1.0	1.0	1.0	3.0	1.0	3.0	0.0	**17%**	**9**
Armed Assault (Targeted/Gang Violence)	1.0	1.0	1.0	1.0	1.0	3.0	0.0	**13%**	**13**
Unarmed Assault (Workplace Violence)	2.0	0.0	0.0	1.0	1.0	3.0	0.0	**19%**	**6**
Average	**1.40**	**0.73**	**1.13**	**2.13**	**1.27**	**2.47**	**0.00**	**20%**	
		Risk = Probability * Severity							
		0.20	**0.47**	**0.43**					

Weber–Morgan Health Department – Hazardous Materials									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Large External Spill	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**4**
Diesel Spill	1.0	0.0	1.0	2.0	1.0	2.0	0.0	**11%**	**1**
Propane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**4**
Natural Gas	1.0	0.0	0.0	0.0	1.0	3.0	0.0	**7%**	**2**
Average	**0.50**	**0.00**	**0.25**	**0.50**	**0.50**	**1.25**	**0.00**	**2%**	
		Risk = Probability * Severity							
		0.02	**0.17**	**0.14**					

Weber–Morgan Health Department – Infectious Disease Outbreak (Epidemic/Pandemic)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
Level 2 – Affecting >20% of staff	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Influenza	3.0	2.0	0.0	1.0	1.0	1.0	0.0	**28%**	**5**
Ebola, Hanta, & Hemorrhagic Fevers	1.0	3.0	1.0	2.0	3.0	2.0	0.0	**20%**	**6**
SARS (zoological illnesses)	2.0	3.0	1.0	3.0	3.0	2.0	0.0	**44%**	**2**
Tuberculosis (TB)	1.0	1.0	0.0	1.0	1.0	1.0	0.0	**7%**	**8**
Blood Borne Illness; (HIV, AIDS, Hepatitis)	2.0	2.0	0.0	1.0	1.0	1.0	0.0	**19%**	**7**
Novel, MERS or unidentified illness	2.0	3.0	1.0	3.0	3.0	2.0	0.0	**44%**	**2**
MRSA, ESBL, and VRE	2.0	3.0	1.0	1.0	1.0	2.0	0.0	**30%**	**4**
Norovirus or other food borne illness	3.0	3.0	1.0	2.0	1.0	1.0	0.0	**44%**	**2**
Average	**2.00**	**2.50**	**0.63**	**1.75**	**1.75**	**1.50**	**0.00**	**30%**	
		Risk = Probability * Severity							
		0.30	**0.67**	**0.45**					

Weber–Morgan Health Department – Summary of Facility Hazards Analysis						
	Natural	Infra-structure	Human	Hazmat	Infection	Total for Area
Probability	**0.82**	**0.36**	**0.47**	**0.17**	**0.67**	**0.49**
Severity	**0.38**	**0.30**	**0.43**	**0.14**	**0.45**	**0.34**
Hazard-Specific Relative Risk:	**0.31**	**0.11**	**0.20**	**0.02**	**0.30**	**0.17**





Weber–Morgan Health Department – Synopsis			
Event		**Risk**	**Rank**
Natural Events	Winter Storm (blizzard, big hail, ice rain, low temp)	50%	3.5
	Tornado >F3 (Fujita scale 158–206mph)	11%	38.5
	High Winds < F3 (Fujita scale 40–157mph)	28%	13.5
	Severe Heat / Extended Drought	50%	3.5
	Earthquake >5.0	61%	1.5
	Liquefaction	61%	1.5
	Flood (heavy rain, snow melt, dam inundation)	39%	9
	Wild Fire	39%	9
	Landslide	15%	28
	Avalanche	15%	28
	Lightning Thunderstorm >T3 (10–20 within 5 minutes)	4%	49
Infrastructure Failure	Electrical Power Failure >72 hrs.	15%	28
	Fuel Shortage >72 hrs.	11%	38.5
	Natural Gas Disruption >72 hrs.	11%	38.5
	Water System Disruption >3 hrs.	9%	43.5
	Sewer System Failure >3 hrs.	11%	38.5
	Steam/Boiler Failure	9%	43.5
	HVAC System Failure >3 hrs.	15%	28
	Smoke/Fire Alarm System Failure >3 hrs.	15%	28
	Fire Sprinkler Line Disruption	15%	28
	Elevator Disruption >3 hrs.	7%	47
	Internal Flooding	9%	43.5
	Backup Generator Failure >3 hrs.	11%	38.5
	Food Service Disruption >72 hrs.	0%	51
	Computer/Server System Disruption >3 hrs.	13%	31.5
	Communications (phone, PBX, cell service) >3 hrs.	13%	31.5

Weber–Morgan Health Department – Synopsis			
Event		**Risk**	**Rank**
Human Incidents	MCI Trauma Transportation (Highway or Rail) Accident	13%	33.5
	Mass Fatality Transportation (Air Travel) Accident	19%	19.5
	MCI Trauma Active Shooter/Lone Wolf Terrorist	20%	16.5
	MCI Blast Trauma / Terrorist	22%	15
	Bomb Threat/Suspicious Package	17%	23
	High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	-6%	53
	Large External Structure Fire	15%	28
	Large Internal Structure Fire	33%	11
	Hostage Situation	17%	23
	Civil Unrest/Disturbance	19%	19.5
	Labor Action/Staff Shortage	9%	43.5
	Ransomware /Data Breach /Cyber Security	39%	9
	Armed Robbery	17%	23
	Armed Assault (Targeted/Gang Violence)	13%	33.5
	Unarmed Assault (Workplace Violence)	19%	19.5
HAZMAT	Large External Spill	0%	51
	Diesel Spill	11%	38.5
	Propane	0%	51
	Natural Gas	7%	47
Infectious Disease Outbreak	Influenza	28%	13.5
	Ebola, Hanta, & Hemorrhagic Fevers	20%	16.5
	SARS (zoological illnesses)	44%	6
	Tuberculosis (TB)	7%	47
	Blood Borne Illness; (HIV, AIDS, Hepatitis)	19%	19.5
	Novel, MERS or unidentified illness	44%	6
	MRSA, ESBL, and VRE	30%	12
	Norovirus or other food borne illness	44%	6

Weber–Morgan Health Department – Top Risk						
%	**Rank**	**Risk**	**Mitigation** Any activities that actually eliminate or reduce the occurrence of a disaster. It may also include long-term activities that reduce the effects of unavoidable disasters.	**Preparedness** Preparedness activities are necessary to the extent that mitigation measures have not or cannot prevent disasters.	**Response** Actions that are designed to provide emergency assistance for casualties. Seek to reduce the possibility of secondary damage and speed recovery.	**Recovery** Continue until all systems return to normal. Short-term returns vital life support to minimum operating standards. The long term may continue for a number of years after a disaster.
89%	1	Earthquake >5.0	Fasten shelves/bookcase/ files, Heavy objects away from beds, Flammable products and Hazardous chemicals should be stored away from heat sources and in tightly secured containers.	Annual Staff Training with Community and State resources "Great Utah Shakeout."	Keep calm, protect patients, Activate EOP plan, Conserve resources.	Work with community, city, county, state, federal and corporate directives in COOP plan.
83%	2	MCI Blast Trauma / Terrorist	Emergency equipment, such as AEDs and Stop the Bleed kits are placed throughout the building to support rescue operations.	Staff training in MGT-348: Medical Preparedness and Response for Bombing Incidents.	Keep calm, protect staff, Activate EOP plan, Conserve resources.	Work with community, city, county, state, federal and corporate directives in COOP plan.
78%	3	Liquefaction			Keep calm, protect staff, Activate EOP plan, Conserve resources.	Work with community, city, county, state, federal and corporate directives in COOP plan.
78%	4	MCI Trauma Active Shooter/Lone Wolf Terrorist	Employee work areas are in staff-only restricted space, and panic buttons have been installed for staff who deal with public.	Staff training in Active Shooter protocols of Run/Hide/Fight.	Keep calm, protect staff, Activate EOP plan, Conserve resources.	Pay close attention to directions given from first-responders and work with LEA to resolve incident.
72%	5	Unarmed Assault (Workplace Violence)	Employee work areas are in staff-only restricted space, and panic buttons have been installed for staff who deal with public.	Staff are trained in mitigation and de-escalation. We will also activate Lockout/Hold where staff would close their office doors and stay alert.	Keep calm, protect staff, Activate EOP plan, Conserve resources.	Pay close attention to directions given from first-responders and work with LEA to resolve incident.

West Warren–Warren Water Improvement District – Natural Events									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Winter Storm (blizzard, big hail, ice rain, low temp)	3.0	1.0	1.0	1.0	1.0	2.0	2.0	**44%**	**6**
Tornado >F3 (Fujita scale 158–206 mph)	1.0	1.0	1.0	1.0	0.0	3.0	2.0	**15%**	**8**
High Winds < F3 (Fujita scale 40–157 mph)	3.0	2.0	2.0	1.0	1.0	2.0	1.0	**50%**	**5**
Severe Heat / Extended Drought	3.0	3.0	3.0	3.0	2.0	1.0	1.0	**72%**	**4**
Earthquake >5.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	**41%**	**7**
Liquefaction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**10**
Flood (heavy rain, snow melt, dam inundation)	3.0	2.0	3.0	2.0	3.0	3.0	1.0	**78%**	**2**
Wild Fire	3.0	3.0	3.0	3.0	3.0	2.0	1.0	**83%**	**1**
Landslide	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**10**
Avalanche	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**10**
Lightning Thunderstorm >T3 (10-20 within 5 minutes)	3.0	2.0	2.0	1.0	2.0	3.0	3.0	**72%**	**4**
Average	**1.91**	**1.36**	**1.55**	**1.27**	**1.27**	**1.64**	**1.18**	**29%**	
		Risk = Probability * Severity							
		0.29	**0.64**	**0.46**					

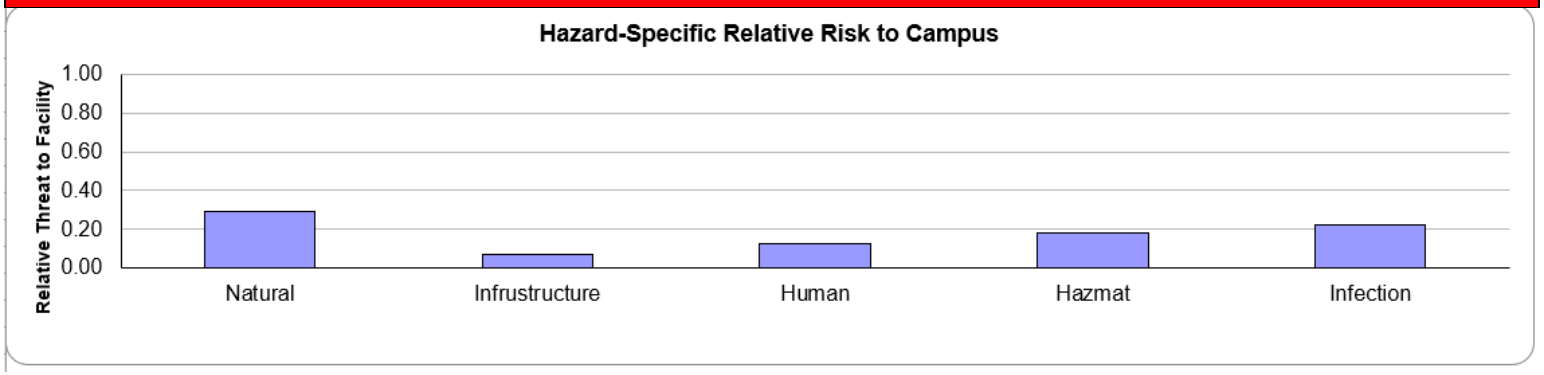
West Warren–Warren Water Improvement District – Infrastructure Failures									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Electrical Power Failure >72 hrs.	3.0	3.0	1.0	2.0	2.0	2.0	1.0	**61%**	**2**
Fuel Shortage >72 hrs.	0.0	0.0	0.0	1.0	1.0	3.0	0.0	**0%**	**12**
Natural Gas Disruption >72 hrs.	2.0	1.0	1.0	1.0	1.0	1.0	0.0	**19%**	**5**
Water System Disruption >3 hrs.	3.0	3.0	3.0	3.0	3.0	3.0	1.0	**89%**	**1**
Sewer System Failure >3 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**12**
Steam/Boiler Failure	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**12**
HVAC System Failure >3 hrs.	1.0	1.0	0.0	0.0	0.0	0.0	0.0	**2%**	**7**
Smoke/Fire Alarm System Failure >3 hrs.	1.0	1.0	1.0	1.0	0.0	1.0	0.0	**7%**	**6**
Fire Sprinkler Line Disruption	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**12**
Elevator Disruption >3 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**12**
Internal Flooding	0.0	1.0	1.0	1.0	0.0	2.0	1.0	**0%**	**12**
Backup Generator Failure >3 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**12**
Food Service Disruption >72 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**11**
Computer/Server System Disruption >3 hrs.	2.0	1.0	2.0	2.0	1.0	1.0	3.0	**37%**	**3**
Communications (phone, PBX, cell service) >3 hrs.	1.0	1.0	1.0	2.0	0.0	3.0	3.0	**19%**	**5**
Average	**0.87**	**0.80**	**0.67**	**0.87**	**0.53**	**1.07**	**0.60**	**7%**	
		Risk = Probability * Severity							
		0.07	**0.29**	**0.25**					

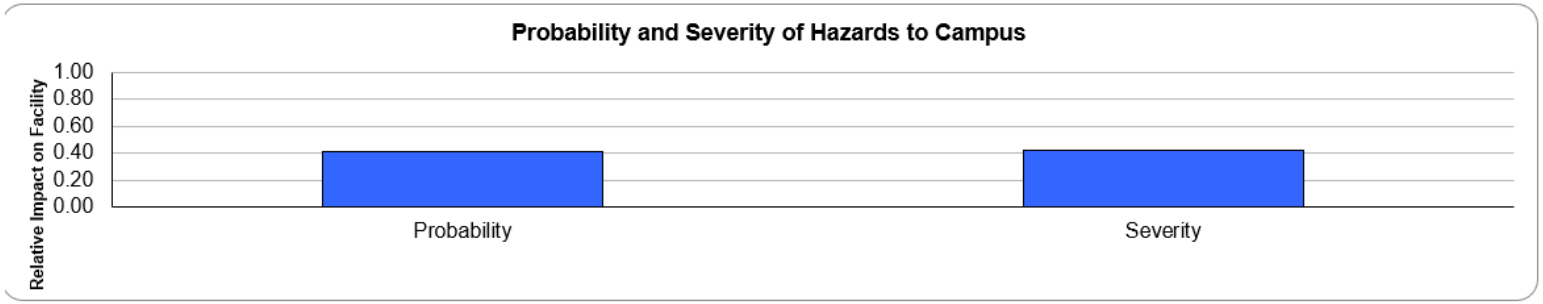
West Warren–Warren Water Improvement District – Human-Related Incidents (accidental or intentional)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
MCI Trauma Transportation (Highway or Rail) Accident	3.0	3.0	2.0	2.0	2.0	2.0	2.0	**50%**	**2**
Mass Fatality Transportation (Air Travel) Accident	1.0	3.0	3.0	1.0	1.0	1.0	1.0	**19%**	**7**
MCI Trauma Active Shooter/Lone Wolf Terrorist	0.0	0.0	0.0	0.0	0.0	0.0	1.0	**0%**	**12**
MCI Blast Trauma / Terrorist	0.0	0.0	0.0	0.0	0.0	0.0	1.0	**0%**	**12**
Bomb Threat/Suspicious Package	1.0	1.0	1.0	1.0	1.0	3.0	1.0	**15%**	**8**
High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	2.0	2.0	1.0	1.0	1.0	1.0	1.0	**19%**	**7**
Large External Structure Fire	2.0	2.0	2.0	3.0	2.0	1.0	1.0	**41%**	**5**
Large Internal Structure Fire	2.0	2.0	2.0	3.0	2.0	1.0	1.0	**41%**	**5**
Hostage Situation	0.0	0.0	0.0	0.0	0.0	0.0	1.0	**0%**	**12**
Civil Unrest/Disturbance	0.0	0.0	0.0	0.0	0.0	0.0	1.0	**0%**	**12**
Labor Action/Staff Shortage	2.0	3.0	1.0	2.0	1.0	3.0	3.0	**48%**	**3**
Ransomware /Data Breach /Cyber Security	3.0	2.0	1.0	3.0	3.0	3.0	3.0	**83%**	**1**
Armed Robbery	0.0	0.0	0.0	0.0	0.0	0.0	1.0	**0%**	**12**
Armed Assault (Targeted/Gang Violence)	0.0	0.0	0.0	0.0	0.0	0.0	1.0	**0%**	**12**
Unarmed Assault (Workplace Violence)	0.0	0.0	0.0	0.0	0.0	0.0	1.0	**0%**	**12**
Average	**1.07**	**1.20**	**0.87**	**1.07**	**0.87**	**1.00**	**1.33**	**13%**	
		Risk = Probability * Severity							
		0.13	**0.36**	**0.35**					

West Warren–Warren Water Improvement District – Hazardous Materials									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Large External Spill	1.0	2.0	2.0	1.0	3.0	1.0	1.0	**19%**	**2**
Diesel Spill	1.0	2.0	2.0	1.0	2.0	1.0	1.0	**17%**	**3**
Propane	1.0	2.0	1.0	1.0	2.0	1.0	1.0	**15%**	**4**
Natural Gas	1.0	3.0	3.0	2.0	3.0	1.0	1.0	**24%**	**1**
Average	**1.00**	**2.25**	**2.00**	**1.25**	**2.50**	**1.00**	**1.00**	**19%**	
		Risk = Probability * Severity							
		0.19	**0.33**	**0.56**					

West Warren–Warren Water Improvement District – Infectious Disease Outbreak (Epidemic/Pandemic)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
Level 2 – Affecting >20% of staff	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Influenza	2.0	2.0	0.0	1.0	1.0	2.0	1.0	**26%**	**2**
Ebola, Hanta, & Hemorrhagic Fevers	1.0	2.0	0.0	1.0	2.0	2.0	1.0	**15%**	**4**
SARS (zoological illnesses)	1.0	2.0	0.0	1.0	2.0	2.0	1.0	**15%**	**4**
Tuberculosis (TB)	1.0	2.0	0.0	1.0	1.0	2.0	1.0	**13%**	**8**
Blood Borne Illness; (HIV, AIDS, Hepatitis)	1.0	2.0	0.0	1.0	1.0	2.0	1.0	**13%**	**8**
Novel, MERS or unidentified illness	1.0	2.0	0.0	1.0	1.0	2.0	1.0	**13%**	**8**
MRSA, ESBL, and VRE	1.0	2.0	0.0	1.0	1.0	2.0	1.0	**13%**	**8**
Norovirus or other food borne illness	2.0	2.0	0.0	3.0	2.0	2.0	2.0	**28%**	**1**
Average	1.0	1.0	0.0	1.0	2.0	2.5	1.0	**14%**	**5**
		Risk = Probability * Severity							
		0.22	**0.46**	**0.48**					

West Warren–Warren Water Improvement District – Summary of Facility Hazards Analysis						
	Natural	Infra-structure	Human	Hazmat	Infection	Total for Area
Probability	**0.64**	**0.29**	**0.36**	**0.33**	**0.46**	**0.41**
Severity	**0.46**	**0.25**	**0.35**	**0.56**	**0.48**	**0.42**
Hazard-Specific Relative Risk:	**0.29**	**0.07**	**0.13**	**0.19**	**0.22**	**0.17**





West Warren–Warren Water Improvement District – Synopsis			
Event		**Risk**	**Rank**
Natural Events	Winter Storm (blizzard, big hail, ice rain, low temp)	44%	12
	Tornado >F3 (Fujita scale 158–206mph)	15%	27
	High Winds < F3 (Fujita scale 40–157mph)	50%	9.5
	Severe Heat / Extended Drought	72%	6.5
	Earthquake >5.0	41%	14
	Liquefaction	0%	45.5
	Flood (heavy rain, snow melt, dam inundation)	78%	5
	Wild Fire	83%	2.5
	Landslide	0%	45.5
	Avalanche	0%	45.5
	Lightning Thunderstorm >T3 (10–20 within 5 minutes)	72%	6.5
Infrastructure Failure	Electrical Power Failure >72 hrs.	61%	8
	Fuel Shortage >72 hrs.	0%	45.5
	Natural Gas Disruption >72 hrs.	19%	21
	Water System Disruption >3 hrs.	89%	1
	Sewer System Failure >3 hrs.	0%	45.5
	Steam/Boiler Failure	0%	45.5
	HVAC System Failure >3 hrs.	2%	36
	Smoke/Fire Alarm System Failure >3 hrs.	7%	35
	Fire Sprinkler Line Disruption	0%	45.5
	Elevator Disruption >3 hrs.	0%	45.5
	Internal Flooding	0%	45.5
	Backup Generator Failure >3 hrs.	0%	45.5
	Food Service Disruption >72 hrs.	0%	45.5
	Computer/Server System Disruption >3 hrs.	37%	14
	Communications (phone, PBX, cell service) >3 hrs.	19%	19

West Warren–Warren Water Improvement District – Synopsis			
Event		**Risk**	**Rank**
Human Incidents	MCI Trauma Transportation (Highway or Rail) Accident	50%	9.5
	Mass Fatality Transportation (Air Travel) Accident	19%	21
	MCI Trauma Active Shooter/Lone Wolf Terrorist	0%	45.5
	MCI Blast Trauma / Terrorist	0%	45.5
	Bomb Threat/Suspicious Package	15%	27
	High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	19%	21
	Large External Structure Fire	41%	14
	Large Internal Structure Fire	41%	14
	Hostage Situation	0%	45.5
	Civil Unrest/Disturbance	0%	45.5
	Labor Action/Staff Shortage	48%	11
	Ransomware /Data Breach /Cyber Security	83%	2.5
	Armed Robbery	0%	45.5
	Armed Assault (Targeted/Gang Violence)	0%	45.5
	Unarmed Assault (Workplace Violence)	0%	45.5
HAZMAT	Large External Spill	19%	21
	Diesel Spill	17%	24
	Propane	15%	27
	Natural Gas	24%	18
Infectious Disease Outbreak	Influenza	26%	17
	Ebola, Hanta, & Hemorrhagic Fevers	15%	27
	SARS (zoological illnesses)	15%	27
	Tuberculosis (TB)	13%	32.5
	Blood Borne Illness; (HIV, AIDS, Hepatitis)	13%	32.5
	Novel, MERS or unidentified illness	13%	32.5
	MRSA, ESBL, and VRE	13%	32.5
	Coliform, E. coli, Giardia water borne illness	82%	2
	Norovirus or other food borne illness	14%	30

West Warren–Warren Water Improvement District – Top Risk						
%	**Rank**	**Risk**	**Mitigation** Any activities that actually eliminate or reduce the occurrence of a disaster. It may also include long-term activities that reduce the effects of unavoidable disasters.	**Preparedness** Preparedness activities are necessary to the extent that mitigation measures have not or cannot prevent disasters.	**Response** Actions that are designed to provide emergency assistance for casualties. Seek to reduce the possibility of secondary damage and speed recovery.	**Recovery** Continue until all systems return to normal. Short-term returns vital life support to minimum operating standards. The long term may continue for a number of years after a disaster.
89%	1	Water System Disruption >3 hours	Regularly monitor main PRV stations, lines, replace worn, old meters, fire hydrant maintenance. Bona Vista Water District is the emergency water supply.	Update emergency plan yearly and discuss response.	Keep calm, notify consumers, community, Activate EPP, conserve resources.	When Utility Service can be returned to normal. Work with community, city, county, state, federal and corporate directives in plan
82%	2	Coliform, E. coli, Giardia water borne illness	Monthly bacteria water testing, frequent Cross-Connection Inspections, cross-connection and backflow valves, educate the consumer, monitor fire hydrant use.	Yearly review of response plan, keep testing supplies in stock	Keep calm, notify affected consumers. Turn on blow-off valve to flush lines. New bacteria test per lab instructions.	Flush and test. Notify consumers when tests are negative.
83%	2.5	Ransomware /Data Breach /Cyber Security	Cyber Security and monitoring from Executech	Update computer, software as needed.	Contact Executech, notify consumers in case of data breach	May need to purchase new system, computer, etc.
83%	2.5	Wild Fire	Water storage tanks maintained and filled.	Create an EPP with local fire districts.	Follow EPP	When Utility Service can be returned to normal. Work with community, city, county, state, federal and corporate directives in plan
72%	6.5	Severe Heat/ Extended Drought	Drought Plan to reduce non-essential water use	Update drought plan yearly, educate community.	Prioritize water distribution, conserve resources	When Utility Service can be returned to normal. Work with community, city, county, state, federal and corporate directives in plan

Unincorporated Sections of Warren County – Natural Events									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Winter Storm (blizzard, big hail, ice rain, low temp)	3.0	2.0	1.0	1.0	1.0	1.0	1.0	**39%**	**7**
Tornado >F3 (Fujita scale 158–206 mph)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**11**
High Winds < F3 (Fujita scale 40–157 mph)	2.0	1.0	3.0	3.0	2.0	1.0	1.0	**41%**	**6**
Severe Heat / Extended Drought	1.0	2.0	2.0	1.0	1.0	3.0	3.0	**22%**	**10**
Earthquake >5.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0	**89%**	**1**
Liquefaction	3.0	2.0	3.0	3.0	2.0	2.0	2.0	**78%**	**2**
Flood (heavy rain, snow melt, dam inundation)	2.0	1.0	3.0	3.0	2.0	1.0	2.0	**44%**	**5**
Wild Fire	3.0	1.0	3.0	1.0	2.0	1.0	2.0	**56%**	**4**
Landslide	2.0	1.0	1.0	1.0	1.0	2.0	3.0	**33%**	**8**
Avalanche	3.0	1.0	2.0	2.0	2.0	2.0	2.0	**61%**	**3**
Lightning Thunderstorm >T3 (10-20 within 5 minutes)	3.0	1.0	1.0	1.0	1.0	0.0	0.0	**22%**	**10**
Average	**2.27**	**1.36**	**2.00**	**1.73**	**1.55**	**1.36**	**1.64**	**41%**	
		Risk = Probability * Severity							
		0.41	**0.76**	**0.54**					

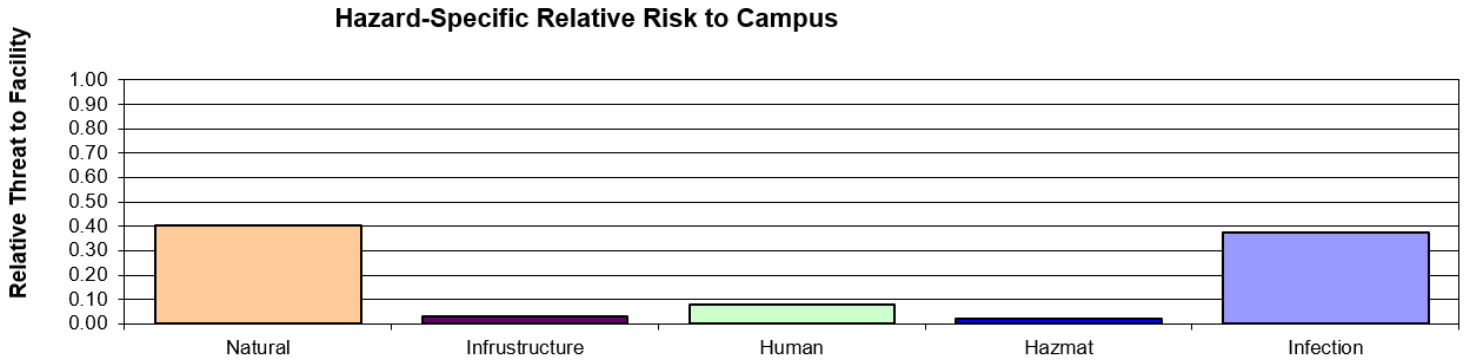
Unincorporated Sections of Warren County – Infrastructure Failures									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Electrical Power Failure >72 hrs.	1.0	2.0	1.0	2.0	1.0	2.0	2.0	**19%**	**4**
Fuel Shortage >72 hrs.	1.0	1.0	1.0	3.0	3.0	3.0	3.0	**26%**	**2**
Natural Gas Disruption >72 hrs.	1.0	2.0	1.0	2.0	1.0	2.0	2.0	**19%**	**4**
Water System Disruption >3 hrs.	2.0	1.0	1.0	2.0	1.0	2.0	2.0	**33%**	**1**
Sewer System Failure >3 hrs.	1.0	1.0	1.0	2.0	1.0	2.0	2.0	**17%**	**5**
Steam/Boiler Failure	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**11**
HVAC System Failure >3 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**11**
Smoke/Fire Alarm System Failure >3 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**11**
Fire Sprinkler Line Disruption	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**11**
Elevator Disruption >3 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**11**
Internal Flooding	0.0	0.0	0.0	0.0	0.0	2.0	0.0	**0%**	**11**
Backup Generator Failure >3 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**11**
Food Service Disruption >72 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**10**
Computer/Server System Disruption >3 hrs.	0.0	0.0	0.0	0.0	0.0	2.0	2.0	**0%**	**11**
Communications (phone, PBX, cell service) >3 hrs.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**12**
Average	**0.40**	**0.47**	**0.33**	**0.73**	**0.47**	**1.00**	**0.87**	**3%**	
		Risk = Probability * Severity							
		0.03	**0.13**	**0.21**					

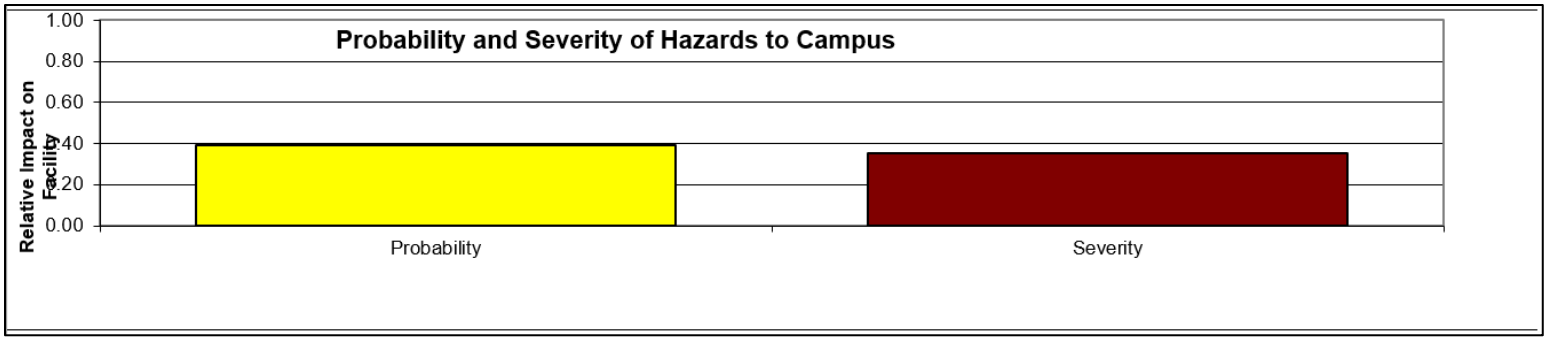
Unincorporated Sections of Warren County – Human-Related Incidents (accidental or intentional)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
MCI Trauma Transportation (Highway or Rail) Accident	1.0	3.0	3.0	2.0	3.0	1.0	3.0	**24%**	**6**
Mass Fatality Transportation (Air Travel) Accident	1.0	3.0	3.0	2.0	3.0	1.0	3.0	**28%**	**3**
MCI Trauma Active Shooter/Lone Wolf Terrorist	1.0	3.0	3.0	3.0	3.0	1.0	1.0	**26%**	**5**
MCI Blast Trauma / Terrorist	1.0	3.0	3.0	3.0	3.0	1.0	1.0	**26%**	**5**
Bomb Threat/Suspicious Package	3.0	1.0	1.0	1.0	1.0	1.0	1.0	**33%**	**2**
High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	2.0	1.0	1.0	1.0	1.0	2.0	3.0	**19%**	**7**
Large External Structure Fire	2.0	2.0	3.0	2.0	1.0	2.0	3.0	**48%**	**1**
Large Internal Structure Fire	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**12**
Hostage Situation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**12**
Civil Unrest/Disturbance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**12**
Labor Action/Staff Shortage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**12**
Ransomware /Data Breach /Cyber Security	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**12**
Armed Robbery	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**12**
Armed Assault (Targeted/Gang Violence)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**12**
Unarmed Assault (Workplace Violence)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**12**
Average	**0.73**	**1.07**	**1.13**	**0.93**	**1.00**	**0.60**	**1.00**	**8%**	
		Risk = Probability * Severity							
		0.08	**0.24**	**0.32**					

Unincorporated Sections of Warren County – Hazardous Materials									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Large External Spill	2.0	2.0	1.0	3.0	1.0	3.0	0.0	**37%**	**1**
Diesel Spill	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**3**
Propane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**3**
Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0%**	**3**
Average	**0.50**	**0.50**	**0.25**	**0.75**	**0.25**	**0.75**	**0.00**	**2%**	
		Risk = Probability * Severity							
		0.02	**0.17**	**0.14**					

Unincorporated Sections of Warren County – Infectious Disease Outbreak (Epidemic/Pandemic)									
Event	**Probability**	**Human Impact**	**Property Impact**	**Business Impact**	**X Factor**	**Internal Preparedness**	**External Response**	**Risk**	**Rank**
Level 2 – Affecting >20% of staff	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	The unknown, expressed level of trepidation	Plans, training, education, equipment	Community readiness	Relative threat*	Highest to lowest
Influenza	3.0	2.0	0.0	1.0	1.0	1.0	2.0	**39%**	**4**
Ebola, Hanta, & Hemorrhagic Fevers	1.0	3.0	1.0	2.0	3.0	2.0	2.0	**24%**	**7**
SARS (zoological illnesses)	2.0	3.0	1.0	3.0	3.0	2.0	2.0	**52%**	**3**
Tuberculosis (TB)	1.0	1.0	0.0	1.0	1.0	1.0	2.0	**11%**	**8**
Blood Borne Illness; (HIV, AIDS, Hepatitis)	2.0	2.0	0.0	1.0	1.0	1.0	2.0	**26%**	**6**
Novel, MERS or unidentified illness	2.0	3.0	1.0	3.0	3.0	2.0	2.0	**52%**	**3**
MRSA, ESBL, and VRE	2.0	3.0	1.0	1.0	1.0	2.0	2.0	**37%**	**5**
Norovirus or other food borne illness	3.0	3.0	1.0	2.0	1.0	1.0	2.0	**56%**	**1**
Average	**2.00**	**2.50**	**0.63**	**1.75**	**1.75**	**1.50**	**2.00**	**38%**	
		Risk = Probability * Severity							
		0.38	**0.67**	**0.56**					

Unincorporated Sections of Warren County – Summary of Facility Hazards Analysis						
	Natural	Infra-structure	Human	Hazmat	Infection	Total for Area
Probability	**0.76**	**0.13**	**0.24**	**0.17**	**0.67**	**0.39**
Severity	**0.54**	**0.21**	**0.32**	**0.14**	**0.56**	**0.35**
Hazard-Specific Relative Risk:	**0.41**	**0.03**	**0.08**	**0.02**	**0.38**	**0.14**





Unincorporated Sections of Warren County – Synopsis			
Event		**Risk**	**Rank**
Natural Events	Winter Storm (blizzard, big hail, ice rain, low temp)	39%	11.5
	Tornado >F3 (Fujita scale 158–206mph)	0%	42.5
	High Winds < F3 (Fujita scale 40–157mph)	41%	10
	Severe Heat / Extended Drought	22%	25.5
	Earthquake >5.0	89%	1
	Liquefaction	78%	2
	Flood (heavy rain, snow melt, dam inundation)	44%	9
	Wild Fire	56%	4.5
	Landslide	33%	16
	Avalanche	61%	3
	Lightning Thunderstorm >T3 (10–20 within 5 minutes)	22%	25.5
Infrastructure Failure	Electrical Power Failure >72 hrs.	19%	28
	Fuel Shortage >72 hrs.	26%	20.5
	Natural Gas Disruption >72 hrs.	19%	28
	Water System Disruption >3 hrs.	33%	16
	Sewer System Failure >3 hrs.	17%	30
	Steam/Boiler Failure	0%	42.5
	HVAC System Failure >3 hrs.	0%	42.5
	Smoke/Fire Alarm System Failure >3 hrs.	0%	42.5
	Fire Sprinkler Line Disruption	0%	42.5
	Elevator Disruption >3 hrs.	0%	42.5
	Internal Flooding	0%	42.5
	Backup Generator Failure >3 hrs.	0%	42.5
	Food Service Disruption >72 hrs.	0%	42.5
	Computer/Server System Disruption >3 hrs.	0%	40
	Communications (phone, PBX, cell service) >3 hrs.	0%	40

Unincorporated Sections of Warren County – Synopsis			
Event		**Risk**	**Rank**
Human Incidents	MCI Trauma Transportation (Highway or Rail) Accident	24%	23.5
	Mass Fatality Transportation (Air Travel) Accident	28%	18
	MCI Trauma Active Shooter/Lone Wolf Terrorist	26%	20.5
	MCI Blast Trauma / Terrorist	26%	20.5
	Bomb Threat/Suspicious Package	33%	16
	High Special Needs Population (Elderly, Children, Refugee, Economic Status, Accessory Dependent or Language/Cultural Barriers)	19%	28
	Large External Structure Fire	48%	8
	Large Internal Structure Fire	0%	42.5
	Hostage Situation	0%	42.5
	Civil Unrest/Disturbance	0%	42.5
	Labor Action/Staff Shortage	0%	42.5
	Ransomware /Data Breach /Cyber Security	0%	42.5
	Armed Robbery	0%	42.5
	Armed Assault (Targeted/Gang Violence)	0%	42.5
	Unarmed Assault (Workplace Violence)	0%	42.5
HAZMAT	Large External Spill	37%	13.5
	Diesel Spill	0%	42.5
	Propane	0%	42.5
	Natural Gas	0%	42.5
Infectious Disease Outbreak	Influenza	39%	11.5
	Ebola, Hanta, & Hemorrhagic Fevers	24%	23.5
	SARS (zoological illnesses)	52%	6.5
	Tuberculosis (TB)	11%	31
	Blood Borne Illness; (HIV, AIDS, Hepatitis)	26%	20.5
	Novel, MERS or unidentified illness	52%	6.5
	MRSA, ESBL, and VRE	37%	13.5
	Norovirus or other food borne illness	56%	4.5

Unincorporated Sections of Warren County – Top Risk						
%	**Rank**	**Risk**	**Mitigation** Any activities that actually eliminate or reduce the occurrence of a disaster. It may also include long-term activities that reduce the effects of unavoidable disasters.	**Preparedness** Preparedness activities are necessary to the extent that mitigation measures have not or cannot prevent disasters.	**Response** Actions that are designed to provide emergency assistance for casualties. Seek to reduce the possibility of secondary damage and speed recovery.	**Recovery** Continue until all systems return to normal. Short-term returns vital life support to minimum operating standards. The long term may continue for a number of years after a disaster.
89%	1	Earthquake >5.0	Fasten shelves/bookcase/ files, Heavy objects away from beds, Flammable products and Hazardous chemicals should be stored away from heat sources and in tightly secured containers.	Annual Staff Training with Community and State resources "Great Utah Shakeout"	Keep calm, protect patients, Activate EOP plan, Conserve resources.	When Utility Service can be returned to normal. Work with community, city, county, state, federal and corporate directives in COOP plan
83%	2	MCI Blast Trauma / Terrorist				
78%	3	Liquefaction				
78%	4	MCI Trauma Active Shooter/Lone Wolf Terrorist				
72%	5	Unarmed Assault (Workplace Violence)				