

NORTHERN NEVADA

# Public Health+

*Serving Reno, Sparks & Washoe County*

**PUBLIC HEALTH  
PREPAREDNESS REPORT  
JUNE 2025**

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*Serving Reno, Sparks & Washoe County*

## MISSION

**To improve and protect our community's quality of life and increase equitable opportunities for better health.**

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## INTRODUCTION

Public health preparedness is essential for safeguarding communities against emerging threats, including climate change-driven disasters, disease outbreaks, and other emergencies. *The Public Health Preparedness 2025* report provides a comprehensive overview of Northern Nevada's strategies to enhance resilience, response, and recovery efforts in the face of increasing environmental and public health challenges. This report highlights past and current key preparedness efforts undertaken in Washoe County and the broader Northern Nevada region. It presents real-world case studies, legislative frameworks, and technical capabilities designed to mitigate risks and protect vulnerable population. This report outlines the following:

- Overview of the legal framework in Nevada and Washoe County for understanding policy that supports real world public health preparedness work in emergency situations,
- Strategies for rapid response and coordination, strengthening interagency collaboration and mobilization,
- Multifaceted impact of climate change to communities with increasing heat wave events, wildfires, severe winter weather, and flooding in Washoe County,
- Quantifying risk to human lives, property damage, and community resilience for preparedness and mitigation efforts,
- Integrate legislative, operational, and real-world perspective in the context of climate change preparedness.

By integrating legislative, operational, and real-world perspectives, this report serves as a valuable resource for policymakers, emergency responders, and public health professionals. It underscores the importance of proactive planning and coordinated efforts to enhance regional resilience in the face of evolving public health threats.

## NEVADA LEGISLATIVE SUMMARY FOR PUBLIC HEALTH PREPAREDNESS

In the state of Nevada, public health preparedness and emergency response are governed by the **Nevada Revised Statutes (NRS)**, providing a legal framework for coordinated and effective crisis management. Key aspects include:

- *Legal Authority & Structure* – NRS grants government agencies the authority to act during public health crises and emergencies (e.g., Chapters 439 and 414).
- *Public Health & Safety Protection* – Enables emergency declarations, resource mobilization, and structured responses to threats like pandemics and natural disasters.
- *Rights & Responsibilities* – Clarifies citizen rights while granting the state powers to impose necessary restrictions during emergencies.
- *Interagency Coordination* – Ensures collaboration between agencies (e.g., local health departments, fire services, and law enforcement) for efficient crisis management.
- *Legal Consistency & Transparency* – Standardizes laws statewide, ensuring fairness and public awareness of rights and obligations.

**Table 1. Summary of Key chapters in Nevada Revised Statute Governing Public Health Emergency Declaration and Response.**

NEVADA REVISED STATUTE	PROVISIONAL SUMMARY	REAL WORLD SCENARIO
NRS Chapter 439 – Administration of Public Health	Grants the Governor authority to declare public health emergencies and establish response teams.	<b>COVID-19 Pandemic (2020-2021):</b> During the COVID-19 pandemic, the Governor declared a public health emergency under NRS 439.970, enabling a coordinated statewide response. Washoe County activated its emergency operations center and collaborated with NNPH, local health and EMS agencies to implement public health measures, distribute vaccines, and provide essentials support.
NRS Chapter 414 – Emergency Management	Establishes the Division of Emergency Management and details the Governor’s emergency powers, emphasizing interagency coordination.	<b>Wildfire Events:</b> Washoe County has faced significant wildfire threats, prompting the Governor to declare states of emergency under NRS 414.070. These declarations facilitated resource mobilization, evacuation orders, and interagency coordination to protect public health and safety. In the event of <b>Davis Fire which took place September 7, 2024</b> , burned through 5,824 acres of private, state and federal lands over the course of 18 days until 100% (full) containment.

## Northern Nevada Public Health Emergency Operations Plan: Overview and Hazard Priorities

The Northern Nevada Public Health (NNPH) **Emergency Operations Plan (EOP)** establishes a framework for NNPH's emergency response efforts, detailing protocols, principles, and responsibilities. The EOP is rooted in the **National Incident Management System (NIMS)** and **Incident Command System (ICS)**, which structure NNPH's approach to emergency situations,

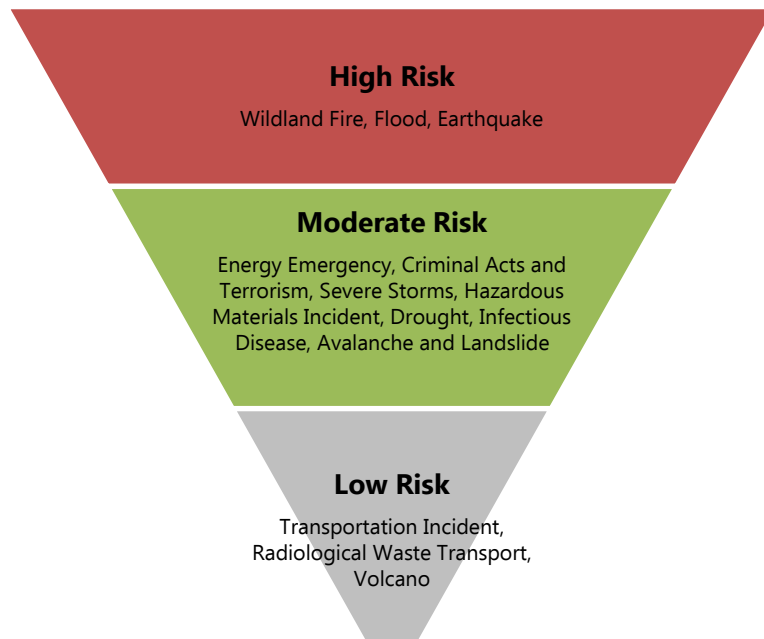


Figure 1. Identification of hazards that pose a threat to Washoe County from the NNPH EOP May 2024.

particularly disease outbreaks in Washoe County where NNPH assumes a lead role in the incident response. NNPH responsibility includes, and not limited to EOP plans with corresponding priority level based on critical resource needs and capacity. Activation and priority levels at NNPH are aligned with Washoe County Emergency Management. NNPH EOP includes 14 Annex that goes into depth for response and operational framework in various scenarios, such as outbreaks or mass casualty incident(s). The EOP also provides guidance on emergency planning and response in situations and

assumptions such as hazards that post a threat to Washoe County (Figure 1).

## Navigating Catastrophe: Washoe County's Approach to Mass Casualty Incidents

Mass casualty incidents (MCIs) represent critical situations that can overwhelm local resources due to the sheer number of victims requiring immediate medical attention. In Washoe County, Nevada, the risk of MCIs is taken seriously by emergency management and healthcare systems. An MCI is an event resulting in a significant number of casualties, usually defined as an incident that requires extraordinary resources to manage due to the number, severity, or type of injuries. Examples include natural disasters, terrorist attacks, industrial accidents, and large-scale

**Adult Triage**  
**S.T.A.R.T. Algorithm**  
 Simple Triage And Rapid Treatment  
 DMS-05704\_Wallet Card • Rev 10-19-21  
 TriageTags.com

**Pediatric Triage**  
**JumpSTART Algorithm**  
 ©Lou Romig MD, 2002  
 DMS-05704\_Wallet Card • Rev 10-19-21  
 TriageTags.com

**Adult Triage Details:**

- Able to walk on command and no major injuries. ☐ **MINOR**
- No respirations after head tilt. ☐ **DECEASED**
- Respirations after head tilt. ☐ **IMMEDIATE**  
 ~ Skip if already breathing ~
- Respirations: Over 30 per min. ☐ **IMMEDIATE**
- OR
- Perfusion: Radial pulse absent. (Control bleeding) ☐ **IMMEDIATE**
- OR
- Mental status: Unable to follow simple commands. ☐ **IMMEDIATE**
- All others. ☐ **DELAYED**

**Pediatric Triage Details:**

- Able to walk. No major injuries. (re-evaluate in secondary triage) ☐ **MINOR**
- Apneic and no pulse after head tilt. ☐ **DECEASED**
- Apneic with pulse after 5 rescue breaths. ☐ **DECEASED**
- Respirations after head tilt or 5 rescue breaths. ☐ **IMMEDIATE**  
 ~ Skip if already breathing ~
- Respirations: Less than 15 or over 45 per minute. ☐ **IMMEDIATE**
- OR
- Perfusion: Radial pulse absent. (Control bleeding) ☐ **IMMEDIATE**
- OR
- AVPU: P inappropriate or U. ☐ **IMMEDIATE**
- All others. (A, V or P appropriate) ☐ **DELAYED**

Figure 2. Adult and Pediatric Guidelines for Emergency Medical Triage Response.

most effectively during an MCI. Preparedness efforts contribute to the overall resilience of the community, enhancing its ability to recover from disasters. Washoe County employs the Incident Command System (ICS) to manage the response to MCIs. This system provides a standardized approach to the command, control, and coordination of emergency responses. The use of standardized triage systems, such as START (Simple Triage and Rapid Treatment), ensures that victims are assessed and treated based on the severity of their injuries.

transportation incidents. Emergency management is a discipline that involves preparing for, mitigating, responding to, and recovering from emergencies. This includes creating plans, conducting drills, and coordinating with various agencies. **Triage** is a process used in MCIs to prioritize patient treatment based on the severity of their conditions. This ensures that those with the most critical needs receive care first. Effective preparedness and rapid response reduce the number of fatalities and long-term health impacts among victims. Pre-established protocols and resource allocation plans ensure that available resources are used





Figure 3. Coordination and Emergency Management in Action During a Mass Casualty Incident Response.

Effective response relies on the coordination between various agencies, including fire departments, law enforcement, EMS, hospitals, and public health departments. Through well-defined response protocols and effective coordination, the county is well-equipped to handle the challenges posed by MCIs. The goal is to minimize the impact on human life and infrastructure, ensuring that the community can recover swiftly and effectively from such devastating events. On

September 16, 2011, a modified P-51 Mustang aircraft crashed into the spectator area at the National Championship Air Races in Reno, Nevada. The incident resulted in 11 deaths and over 70 injuries, making it one of the deadliest air show disasters in U.S. history. This tragedy underscored the importance of having robust MCI protocols in place. The initial response involved rapid deployment of **emergency medical services (EMS)** and first responders. On-site medical personnel, prepared for potential emergencies, played a crucial role in providing immediate care. Victims were quickly triaged to prioritize those with life-threatening injuries. Local hospitals were alerted, and patients were transported swiftly to medical facilities equipped to handle the surge.

In the complex landscape of emergency preparedness, establishing [Community Points of Dispensing \(POD\) systems](#) is critical to ensuring rapid and efficient distribution of essential medications, vaccines, and medical supplies during public health emergencies, such as pandemics or bioterrorism events. These decentralized facilities depend not only on their physical infrastructure but also on the thorough training, education, and coordinated exercises involving all community stakeholders. Central to an effective POD system are robust training programs that provide POD personnel—healthcare professionals, emergency responders, and volunteers alike—with essential skills and knowledge to perform efficiently under emergency conditions. Community education initiatives are vital, as they inform the public about POD operations and clarify the roles individuals play within the larger emergency response framework. Through community outreach, workshops, and public information campaigns, residents gain insight into POD processes and how their participation supports a successful response. This outreach fosters community trust and collaboration, essential elements for achieving compliance and collective action during crisis response. Real-world application through simulation exercises is fundamental for assessing and enhancing response readiness. Full-scale drills, tabletop exercises, and functional simulations test the POD system's effectiveness, highlighting strengths and uncovering any areas for improvement. These exercises are also opportunities for multi-agency coordination, allowing stakeholders to practice joint operations, streamline communication, and solidify inter-agency partnerships, thus bolstering interoperability across response efforts.

NNPH hosts POD exercises annually and participation is open to volunteers and Medical Reserve Corp volunteers. Much like in a real-world scenario, every participant in POD exercise must clearly understand their specific roles, from patient triage and medication administration to logistical support, to maintain operational flow and reduce bottlenecks. Throughout the COVID-19 community pandemic response, especially in the Fall of 2020, the NNPH PHP program worked with Community and Clinical Health Services (CCHS) and community partners to run and operate eight Point of Dispensing (POD) events and provided influenza shots to vulnerable populations in our community. POD locations included Gerlach and Incline Village as well as partnerships with Catholic Charities of Northern Nevada and the City of Reno. The POD operations are intended to increase the general rate of influenza vaccination uptake in the community as well as providing training opportunities for community partners to run high-volume POD sites in anticipation of the release of a COVID-19 vaccine.

### **TEST POD Training In Action**

NNPH Public Health Preparedness hosts collaborative multi-jurisdictional training with emergency preparedness and response professionals who may be involved with setting up and operating a POD to respond to a public health emergency. NNPH deployed *This is a TEST POD*, a CDC training and exercise simulation tool for points of dispensing (POD). *This is a TEST* provide other toolkit for Community Reception Centers (CRC) module that helps participants understand specific roles and responsibilities at a community reception center during a radiation emergency. Training using this toolkit intended to increase engagement and knowledge retention in emergency preparedness training and exercises. 88% of surveyed TEST participants reported they were more prepared for a full scale CRC exercise or radiation response after participating in [TEST POD training](#).



Figure 4. THIS IS A TEST: Community Reception Center Training and Exercise Simulation Tool developed by Centers for Disease Control and Prevention.



Effective communication of influenza data is crucial for public health preparedness and response. Without clear communication, stakeholders may struggle to understand trends and risks, leading to delayed responses and reduced public trust. Ensuring data is both timely and actionable, minimizes these risks and supports informed decision-making. To address this, Northern Nevada Public Health's (NNPH) Epidemiology Program redefined how influenza surveillance data is disseminated, setting new standards for accessibility and engagement.

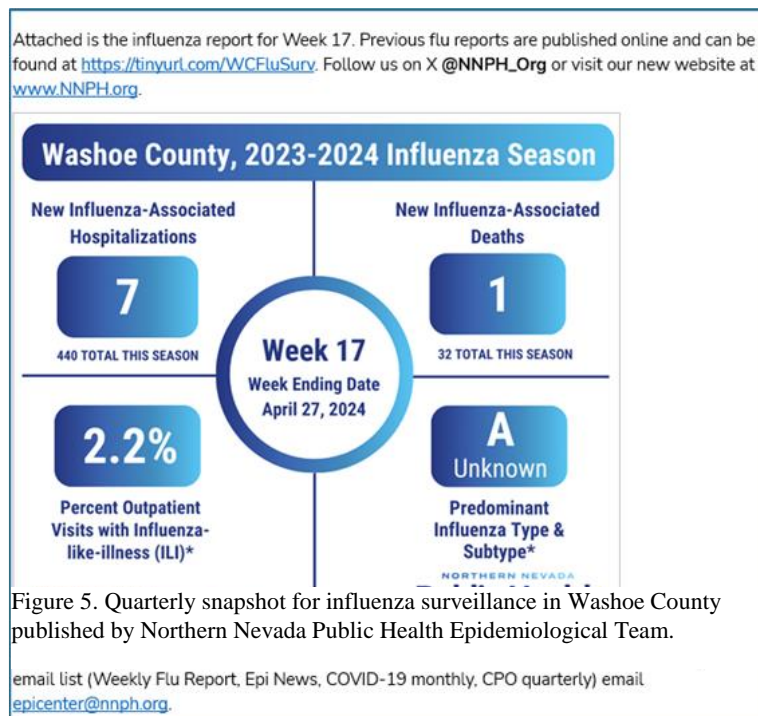


Figure 5. Quarterly snapshot for influenza surveillance in Washoe County published by Northern Nevada Public Health Epidemiological Team.

NNPH revised its reports to make critical data both accessible and actionable for all stakeholders, especially as timely updates can influence public behavior and resource allocation. NNPH's Influenza Program's revamped communication strategy led to improvements in accessibility, stakeholder engagement, and public health preparedness. Key benefits include:

*Enhanced Public Accessibility.* By introducing user-friendly platforms like social media and infographics, NNPH increased accessibility and engagement. Weekly infographics on Facebook

showcasing essential metrics like hospitalizations and mortality rates, as well as the populations most affected (e.g., unvaccinated, pediatric and older adults, persons living with underlying health conditions), were seen over 34,000 times in its first flu season and drove a 37% increase in website. This broader activity reflects the effectiveness of presenting information in a visually appealing and digestible format to not only communicate information proactively but also to drive

engagement to other resources available. traffic. *Increased Stakeholder Engagement.* Attractive and understandable Infographics drew attention from both providers and community members. The improved format resulted in an impressive 114% increase in traffic to the flu surveillance webpage during the autumn months alone.

#### Strengthened Public Health Preparedness.

Timely dissemination of actionable data enables healthcare providers to anticipate resource needs, such as vaccines and hospital beds. Concurrently, public-facing materials raise awareness of preventive measures, contributing to reduced transmission rates. NNPH designed a multi-channel strategy, pairing weekly surveillance reports with infographics and social media to simplify and communicate complex data. NNPH has since introduced a new infographic in both English and Spanish that combines the trends in influenza, RSV, and COVID-19, providing stakeholders a single, coherent snapshot of respiratory illness trends on a weekly basis. It not only simplified complex data but has become a trusted and timely source of information during the “flu” season.

#### A Model for Future Success for Public Health Preparedness

NNPH’s innovative communication strategy demonstrates the power of tailored public health tools. By enhancing usability, NNPH has improved local response capabilities and provided a model for other jurisdictions. This approach underscores the vital role of using data to drive action, ensuring public health information actively safeguards community health.

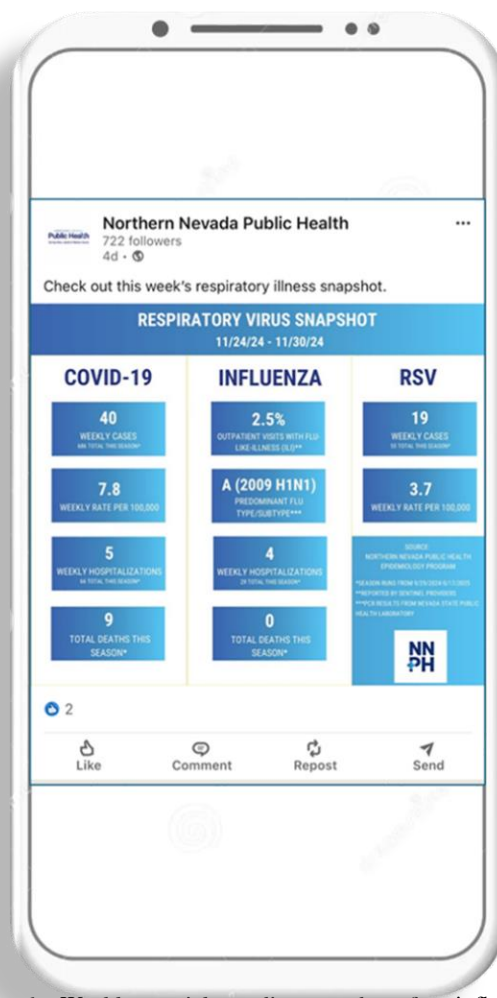


Figure 6. Weekly social media snapshot for influenza surveillance in Washoe County designed and published by Northern Nevada Public Health Epidemiological Team.

### emPOWER Capabilities in Public Health Preparedness

**The HHS *emPOWER Program*** (often referred to as emPOWER) is a partnership between the U.S. Department of Health and Human Services (HHS) and the Centers for Medicare & Medicaid Services (CMS) aimed at supporting public health preparedness (PHP) capabilities. emPOWER provides critical data, mapping tools, and resources that help public health agencies and emergency planners identify and assist individuals who rely on electricity-dependent medical equipment, such as ventilators or oxygen tanks, in their communities. This tool becomes especially valuable for Northern Nevada Public Health (NNPH) during emergencies that might disrupt electricity or access to healthcare services, such as natural disasters or extreme weather events. emPOWER integrates with existing emergency planning and response frameworks to support the PHP goal of protecting vulnerable populations, enhancing community resilience, and improving overall response effectiveness.

### emPOWER Capabilities in Action

In the winter of 2017, Nevada experienced unprecedented amounts of rain and snowfall which led to the threat of severe flooding and subsequent emergencies across the state. Nevada Division of Public and Behavioral Health passed emPOWER datasets to Northern Nevada Public Health to enable life-saving outreach which included activation of MRC

volunteers providing outreach to over 300 homes in flood zones, and outreach to avalanche-prone areas to ensure residents had appropriate resources if transportation is not accessible. emPOWER datasets were used to conduct outreach to tribal populations due to multiple wildfires.

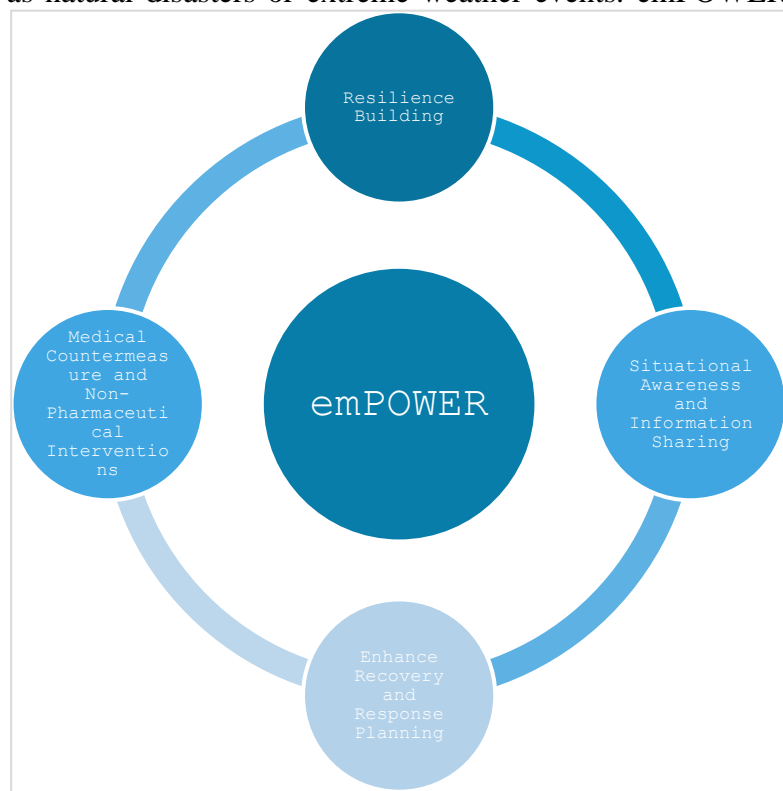
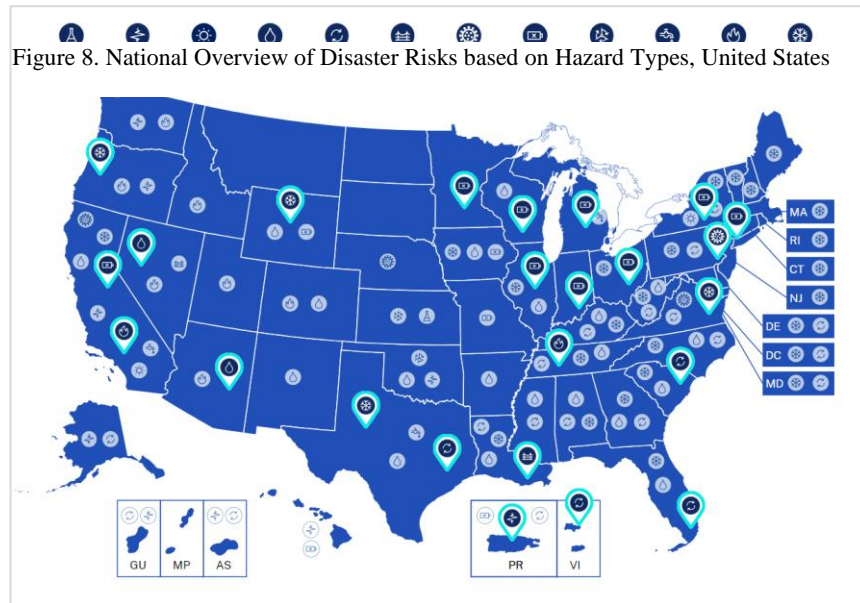


Figure 7 . Key Pillars for Resilience and Emergency Preparedness in Active Response using emPOWER tools.



emPOWER made an impactful contribution to NNPH and community partners with coordinating planning and map evacuation routes in remote areas, identify and address resource gaps, and conduct lifesaving outreach to hundreds of at-risk Medicare beneficiaries. NNPH and Washoe County GIS developed a method to process and operationalize emPOWER data within 30 minutes. The dataset was geocoded and addresses mapped so NNPH can identify individuals residing within the area of interest where emergency response deployment is anticipated.



## NSSP Capabilities in Public Health Preparedness

**The National Syndromic Surveillance Program (NSSP)**, managed by the Centers for Disease Control and Prevention (CDC), is a key component of public health preparedness (PHP) capabilities. NSSP enhances situational awareness by collecting and analyzing real-time health data, which aids in early detection and response to potential public health threats, such as infectious disease outbreaks, bioterrorism, and environmental hazards.

### Community Resilience and Recovery:

The NSSP strengthens PHP capabilities by enabling proactive monitoring, facilitating swift responses, and improving public health agencies' capacity to protect communities against health emergencies. NNPH Epidemiology and Public Health Preparedness Program utilizes National Syndromic Surveillance Program (NSSP) for reporting activities like monitoring influenza incidence in the community.

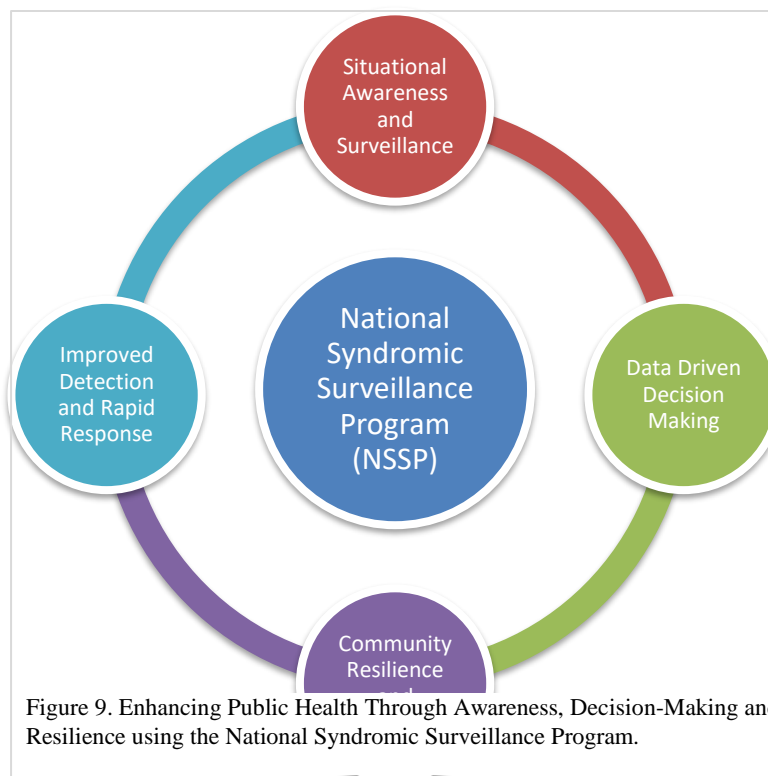


Figure 9. Enhancing Public Health Through Awareness, Decision-Making and Resilience using the National Syndromic Surveillance Program.



## Washoe County Regional Emergency Operations Plan (REOP): Overview and Priority Scale

The **Washoe County Regional Emergency Operations Plan (REOP)** is a collaborative emergency response framework developed with regional partners: the City of Reno, City of Sparks, Pyramid Lake Paiute Tribe, Reno Sparks Indian Colony, Washoe County School District, and the University of Nevada, Reno, which also represents the Desert Research Institute and

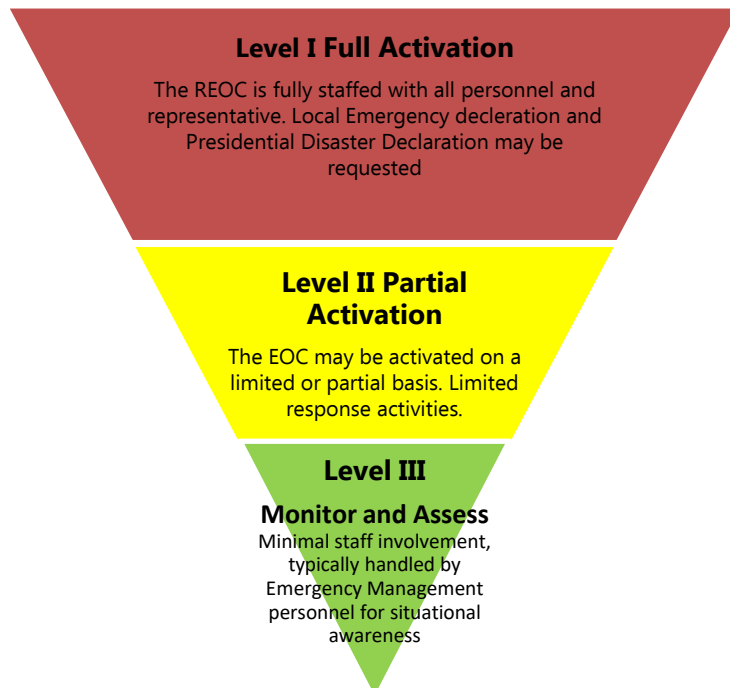


Figure 10. Washoe County Emergency Levels of Activation. Emergency levels align with FEMA National Incident Management System (NIMS) framework and can be adapted depending on size and complexity of an incident.

Truckee Meadows Community College. Recognizing that disasters transcend jurisdictional boundaries, the REOP facilitates unified, coordinated responses across affected partners in Washoe County. The **REOP** provides guidance and practical tools for conducting joint operations in response to any incident that affects one or more Regional Partners. The REOP is an integrated plan based in the National Incident Management System (NIMS). The plan follows an all-hazards approach and is applicable to the 13 Washoe County hazards following any incident. It outlines a concept for emergency operations, assigns roles and responsibilities, and prescribes management and procedures for the **Regional Emergency Operations**

**Center (REOC).** Figure 10 is a chart of priority framework that reflects Washoe County emergency levels of activation. It outlines activities appropriate for each emergency level of activation. Severe property damage is a trigger for level 1 activation. Emergency requiring incidents that span few operational periods where mutual aid may be required from region or state can trigger a level 2 activation. Minor flooding, hazardous spill or earthquake that warrants early monitoring and assessment post incident can trigger a level 3 activation in Washoe County.

## CLIMATE CHANGE – POLICY AND STATEMENTS

Local health departments like **NNPH** play a vital role in national health security, preparing for and responding to public health emergencies. The [NNPH Public Health Preparedness \(PHP\)](#)

[program](#) coordinates response efforts, training exercises, and emergency plans to build resilient communities.

The **National Association of County and City Health Officials (NACCHO)** supports NNPH by aligning projects with federal programs like the CDC's Public Health Emergency Preparedness and ASPR's Hospital Preparedness Program. Key NACCHO initiatives include:

- Strengthening community resilience
- Enhancing medical countermeasure distribution
- Improving situational awareness
- Developing robust public health and emergency response systems

Through these efforts, NACCHO provides guidance to help communities prepare for and recover from diverse emergencies, including those worsened by climate change.

The National Association of County and City Health Officials (NACCHO) has issued several policy statements and letters addressing climate change, emphasizing the critical role of local health departments in mitigating and adapting to its health impacts. These key policy statements and advocacy efforts are meant as guidance from NACCHO, and do not reflect NNPH's mission or views on climate change.

#### **Policy Statements:**

- [Climate Change Policy Statement \(07-09\)](#): NACCHO strongly urges local health departments to collaborate with state, tribal, territorial, and federal public health agencies, as well as community members, to equitably prepare for, mitigate, respond to, and recover from the health impacts of climate change.
- [Climate Change and Vector-Borne Diseases \(14-05\)](#): This statement highlights the increased risk of vector-borne diseases due to climate change and supports local public health activities to prevent, monitor, and control such diseases.

#### **Letters:**

- [Joint Letter to Congress \(March 22, 2021\)](#): NACCHO, along with other public and environmental health organizations, urged Congress to increase funding for the CDC's Climate and Health Program to \$50 million in the FY 2022 appropriations bill. The letter emphasized the necessity of resources to help state and local health departments prepare for and protect communities from health threats posed by climate change.

These documents underscore NACCHO's commitment to supporting local health departments in addressing the health challenges posed by climate change through policy advocacy and resource allocation.



## CLIMATE CHANGE - RISKS

Climate change has emerged as one of the most pressing global challenges of our time, with far-reaching consequences for ecosystems, the economy, human health, and well-being. These challenges make it crucial for The **Essential Services of Public Health** to be deployed as a useful framework for planning and implementing a public health response. Northern Nevada Public Health (NNPH) utilizes the framework for planning and developing public health response for addressing wide variety of challenges that impact human health, including climate change.



Figure 11. Ten Essential Public Health Services (EPHS) describe the public health activities that all communities should undertake to support public health accreditation.

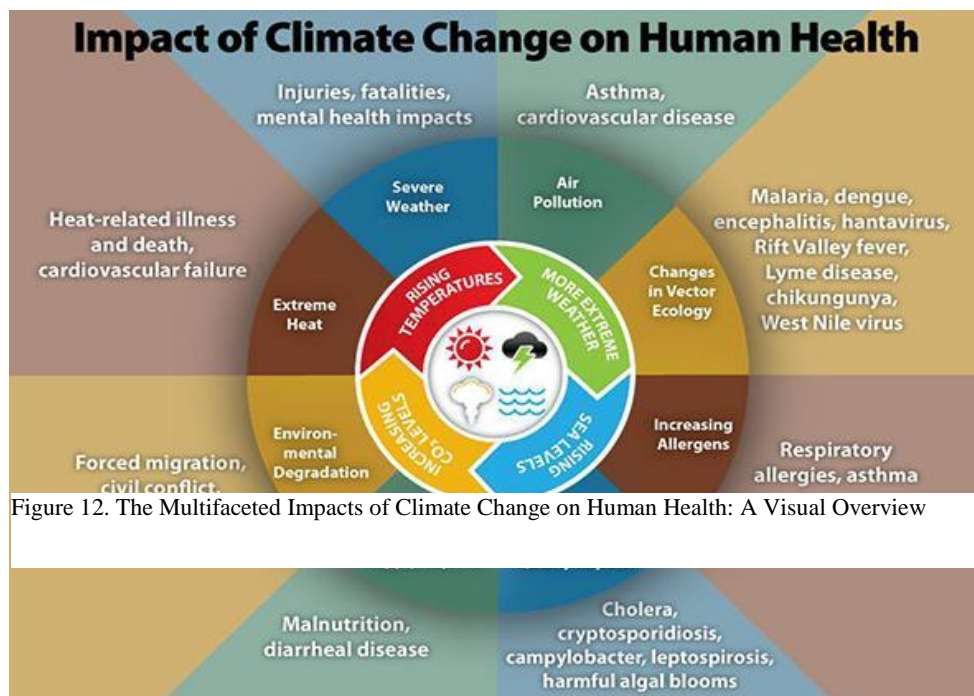


Figure 12. The Multifaceted Impacts of Climate Change on Human Health: A Visual Overview

## EXTREME HEAT WAVE

The risk of any natural hazards in Washoe County disproportionately affects vulnerable communities especially children and elderly living in poverty (Table 1). The percentage of children and population living in poverty in Washoe County is 10.2% of the overall population in 2020, a 2% decrease from 2016. The percentage of children aged 17 and younger has also decreased over the same period. There has been no change in the number of 65 years and older living alone in a non-family household from 2016-2020 (10.7%). While overall poverty trends are declining, there are certain subpopulations (racial/ethnic minorities, rural communities, and individuals with disabilities) that still face disproportionately high rates of poverty and economic insecurity. These indicators serve to highlight opportunities for targeting preparedness resources effectively to the most vulnerable while ensuring equity in disaster response and climate adaptation across all socioeconomic groups.

### The Escalation of Heat-Related Illnesses (HRI)

Heat-related illnesses, including heat exhaustion and heatstroke, have been on the rise as global

**Table 2. Heat Vulnerability and Preparedness Measures in Washoe County 2016-2020**

Measure(s)	2016	2020	Percent Change
Percent of population living in poverty	12.5%	10.2%	-2%
Percent of population 65 years and older living alone in a non-family household	10.7%	10.7%	No Change
Percent of children aged 17 and younger in poverty	16.7%	12.4%	-4.3%

Source: National Environmental Public Health Tracking Network

temperatures continue to soar. In 2023, **extreme heat events** caused more emergency department visits in the United States due to record breaking temperatures (Figure X). According to the Environmental Protection Agency, extreme heat events in the United States have become more frequent, lasting longer, and covering larger areas. In the past decade, the occurrence of extreme heat events was approximately five times higher than in the 1960s (Figure 14). This trend is projected to increase, with more frequent and prolonged heat waves in the coming years. In Washoe County, the number of extreme heat days (above 90°F) is estimated to increase from 16 days (2016-2045) to 34 days (2070-2099), based on low emissions scenario (Representative Concentration Pathway 4.5 – Intermediate). Vulnerable populations such as the elderly, children, and those with pre-existing health conditions are at greater risk (Figure 13). Rising temperatures due to climate change can exacerbate existing health conditions.

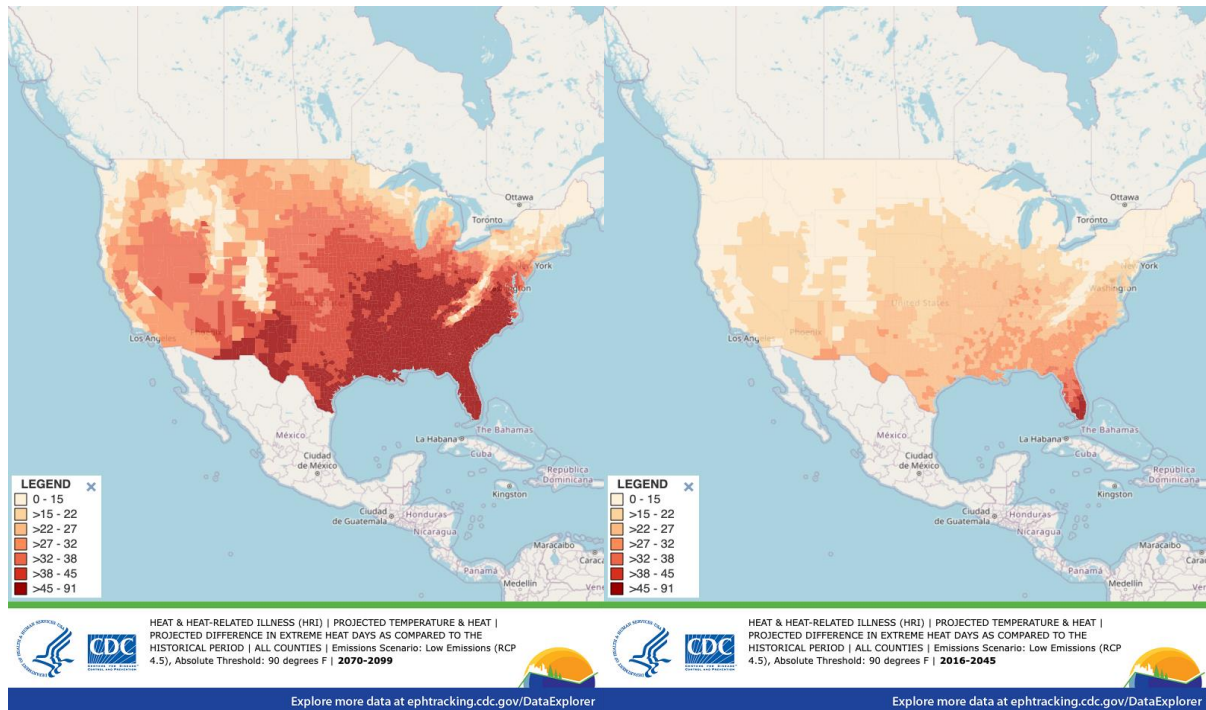


Figure 13. Impact of Extreme Heat on Emergency Department Visits and Strategies to Prevent Heat Related Illnesses. Center for Disease Control and Prevention (2024). Heat-related illness data — United States, 2023. MMWR Morbidity and Mortality Weekly Report. Available at: <https://www.cdc.gov/mmwr/volumes/73/wr/mm7315a1.htm>

Extreme heat mitigation is also important to highlight as Nevada is one of the fastest warming states under climate change. One way to monitor and identify risk areas in Washoe County is monitoring urban heat islands. Urban heat islands is the term used to describe variations in high temperatures in urban areas due to greater number of concrete, fewer trees or other vegetation. The Nevada State Climate Office at the University of Nevada, Reno (UNR) with Desert Research Institute (DRI) conducted the [Reno-Sparks Heat mapping project](#) to better understand areas in Washoe County that are subjected to higher temperatures during all times of the day. This project also highlights the valuable impact of heat modeling research for preparedness efforts to protect the most vulnerable members in the community. The project results also influence future climate adaptation strategies for urban forestry, weatherization and energy efficient programs.



Figure 14. The projected extreme heat day map shows the change in number of days above 90°F anticipated in the time periods



2016–2045 and 2070–2099, compared to the historical period of 1976–2005, based on a low emissions scenario (RCP4.5).

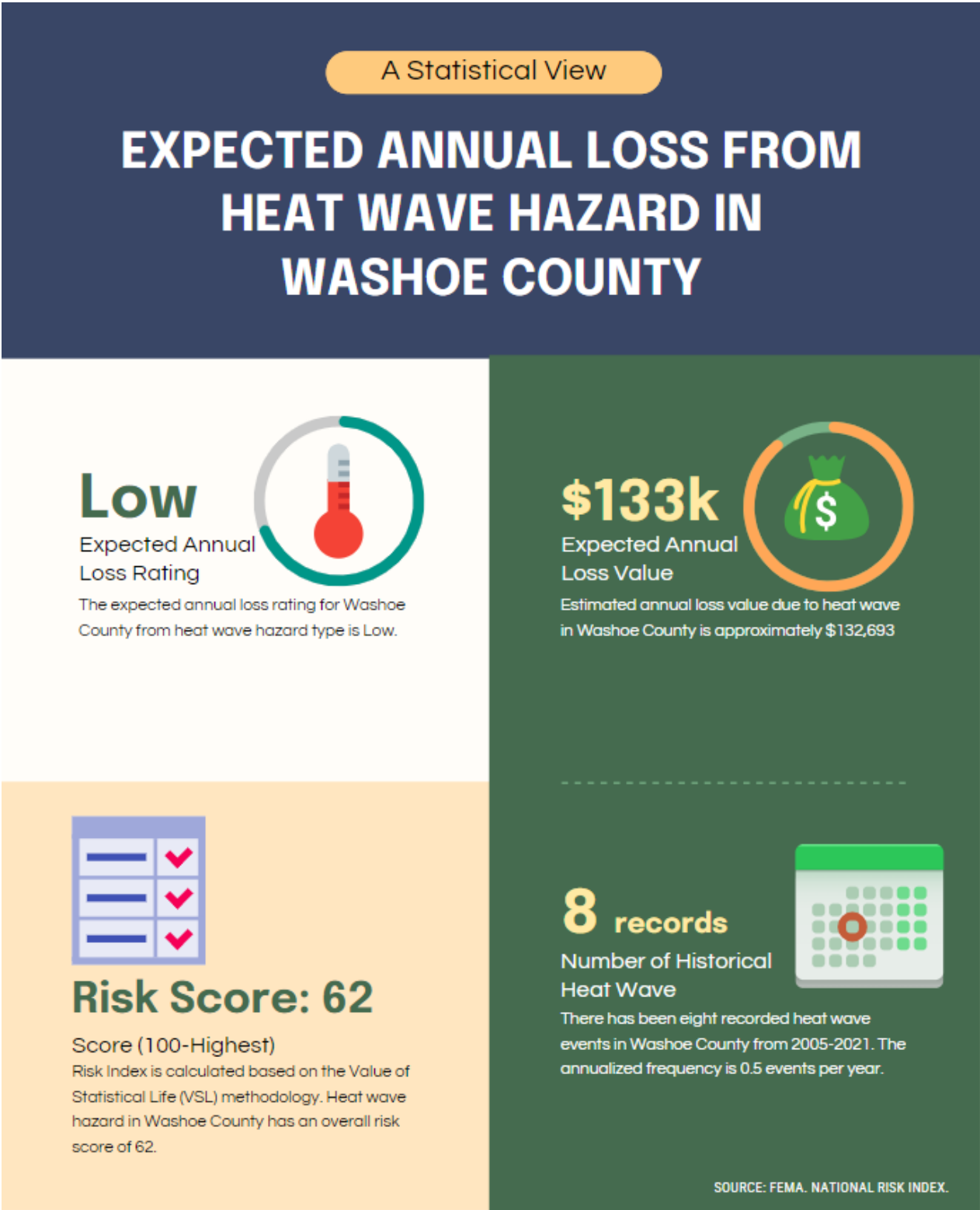


Figure 15. Expected Annual Loss and Risk from Heat Wave Hazards in Washoe County: A Statistical Overview.



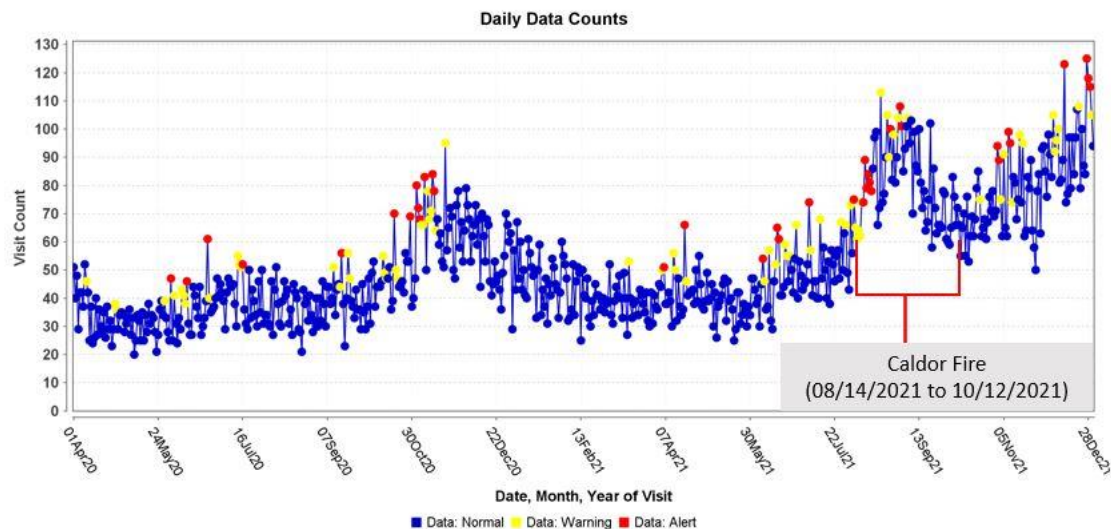


Figure 16. Daily Visit Counts and Caldor Fire Impact on Emergency Department system in Washoe County (2020-2021).

**Wildfires and heat waves** are becoming more common and intense due to **climate change**. Among the many adverse effects, heat waves exacerbate respiratory syndromes, placing vulnerable populations at heightened risk, especially during wildfire season. Wildfire smoke contains fine particulate matter (PM<sub>2.5</sub>), carbon monoxide, and other toxic gases that trigger or worsen respiratory conditions such as asthma, COPD, and bronchitis. At NNPH, syndromic surveillance system ESSENCE can be deployed for near real time monitoring of Emergency Department visits based on respiratory chief complaint syndrome like acute bronchitis, chest congestion, cough, difficulty breathing, nasal congestion, otitis media, pneumonia, shortness of breath, sore throat, upper respiratory infection, wheezing, and acute respiratory distress. Figure 16. highlights syndromic ESSENCE tool to track and monitor health impacts of Caldor Fire, which began August 2021, on the healthcare system (emergency department visits) in Washoe County. Within days of Caldor Fire, Washoe County, including Reno-Sparks area, experienced several days of poor air quality due to smoke from the wildfire. Northern Nevada Public Health Air Quality Management Division issued a Stage 3 Emergency Episode on August 23, 2021 – first time such an alert was issued – part due to PM<sub>2.5</sub> Air Quality Index (AQI) exceeded 200 for a 24-hour period, indicating “Very Unhealthy” to “Hazardous” conditions.

### Mitigating Human-Caused Wildfires in Urban Areas

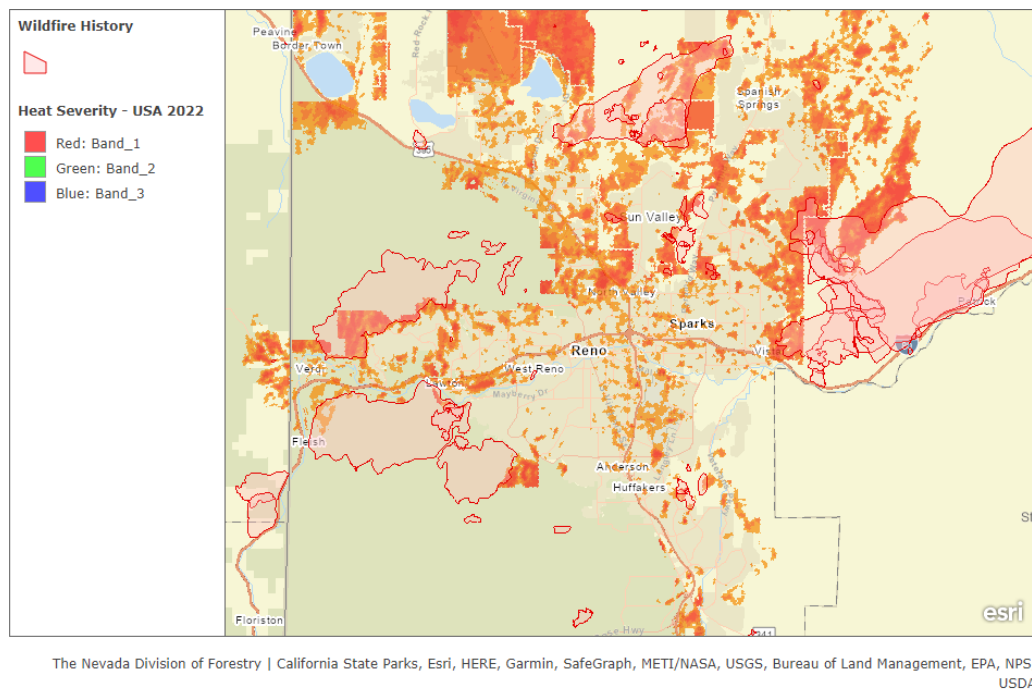


Figure 17. Historical Wildfire Events due to Human Causes with Heat Severity Overlay in Urban Cities in Washoe County.  
Source: The Nevada Division of Forestry Open Data Hub.

According to recent calculations published by FEMA, wildfire is one of the top three hazard types in Washoe County, with a relatively high expected annual loss (EAL) value upwards of \$10 million. Wildfire caused by human activities, such as unattended campfires, discarded cigarettes, and arson, significantly contribute to wildfire frequency. The growing urban-wildland interface puts an even greater number of people at risk, necessitating a focus on mitigation in urban areas. Extreme fire weather, strong winds and intense hydrological droughts are elements to consider when assessing wildfire frequency. In addition to varying elemental changes like climate change, longer duration of excess heat increases wildfire risk even further. The combination of extreme heat and wildfire smoke can be very dangerous to human health. Figure 17 is a map that represents heat severity in urban cities (2022) and wildfire events due to human causes throughout Washoe County since 1997.



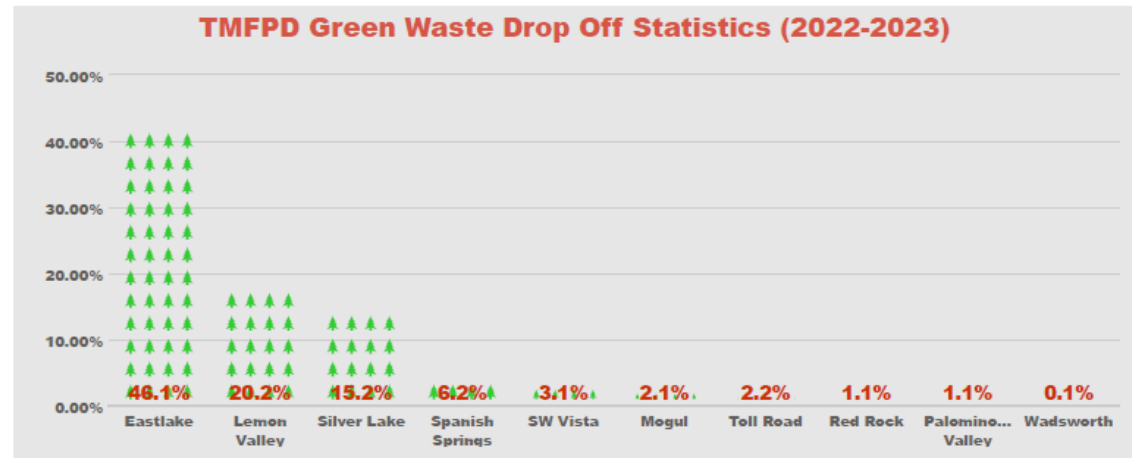
Figure 18. Expected Annual Loss and Risk from Wildfire Hazards in Washoe County: A Statistical Overview.

## STORIES IN THE FIELD – WILDFIRE PREVENTION

**The Green Waste Program** is a defensible space program operated by *Truckee Meadows Fire Department* in Washoe County. **Defensible space** is crucial in wildfire prevention. This space creates a buffer zone around property, thus reducing the risk of fire spreading into the property.

The collection sites are located throughout Washoe County. Collection events gives residents opportunity to be proactive in creating **defensible space** by removing flammable materials and vegetations (junipers, pines, rabbitbrush, sagebrush), making it easier for firefighters to defend property. Reducing green waste along properties also protect it from embers, flames, radiant heat, all elements that increase the chances of property surviving a wildfire.

The Green Waste Program announces collection dates on TMFPD website ([www.tmfpd.com](http://www.tmfpd.com)) and offers multiple dates and locations ( see right map) for green waste **drop offs at no charge**.



**TMFPD Green Waste Drop Off Site (2022-2023)**



## SEVERE WEATHER

Climate change is characterized by alterations in weather patterns, both globally and locally. Changes in weather patterns lead to more frequent and intense extreme weather events. Severe cold weather is one of the consequences of this phenomenon. Increasing planetary temperatures disrupt atmospheric conditions, leading to unpredictable and extreme weather occurrences. There are three types of severe storms in Northern Nevada: winter storms, windstorms, and extreme cold. The impact of winter storms can bring extreme cold, ice storms with intensified cold snaps causing prolonged periods of extremely low temperatures. Warmer air holds more moisture which can potentially lead to increased snowfall during cold weather events. The impacts of windstorms and severe cold weather are multifaceted and have potential adverse effects on public health, public safety during heavy snowfalls to unsafe road conditions and road closures. Extreme weather occurrences have an impact on population health, some of them are well documented due to the impact of these natural exposures to human health. In Washoe County, associated hazards due to severe weather include utility outages that make indoor heating impossible during severe weather events. Figure X. Based on historical precipitation and snowfall data in Reno, NV – one of the highest populated incorporated cities in Washoe County, accumulated snowfall and precipitation was recorded above normal accumulation (inches) in 2023. The highest precipitation recorded was in November 2023 at 10 inches, which is close to the highest historical precipitation ever recorded in 2017.



Figure 19. Preparedness Tips for Severe Weather: Stay Safe and Informed

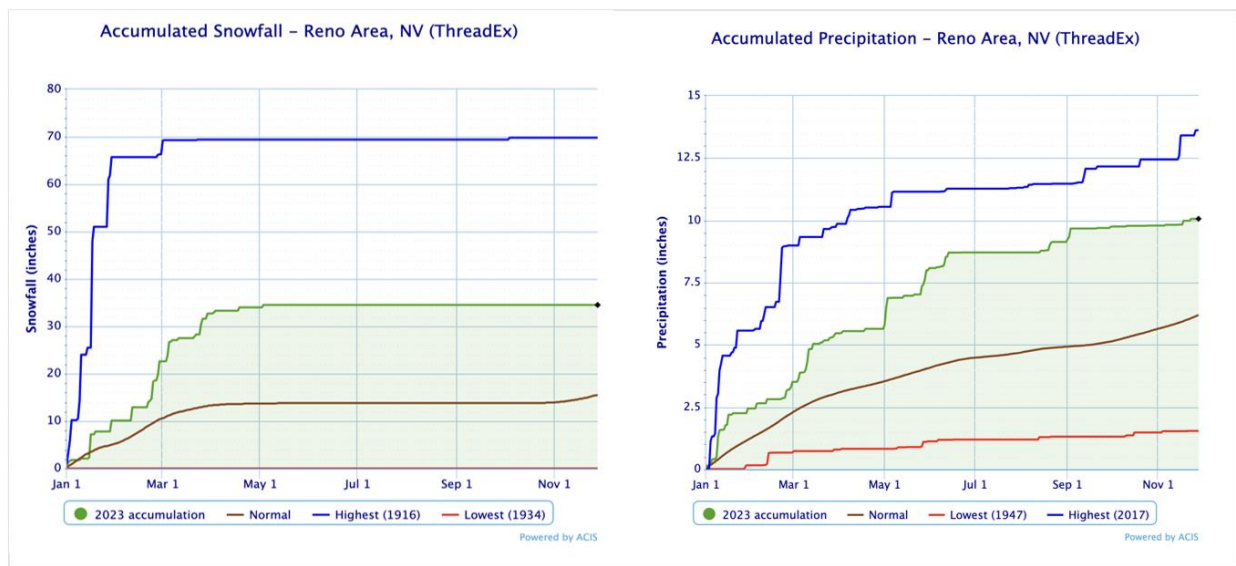


Figure 20. Observed accumulated snowfall and precipitation measured in inches recorded for Reno, NV (Washoe County) from January 2023 to November 2023.

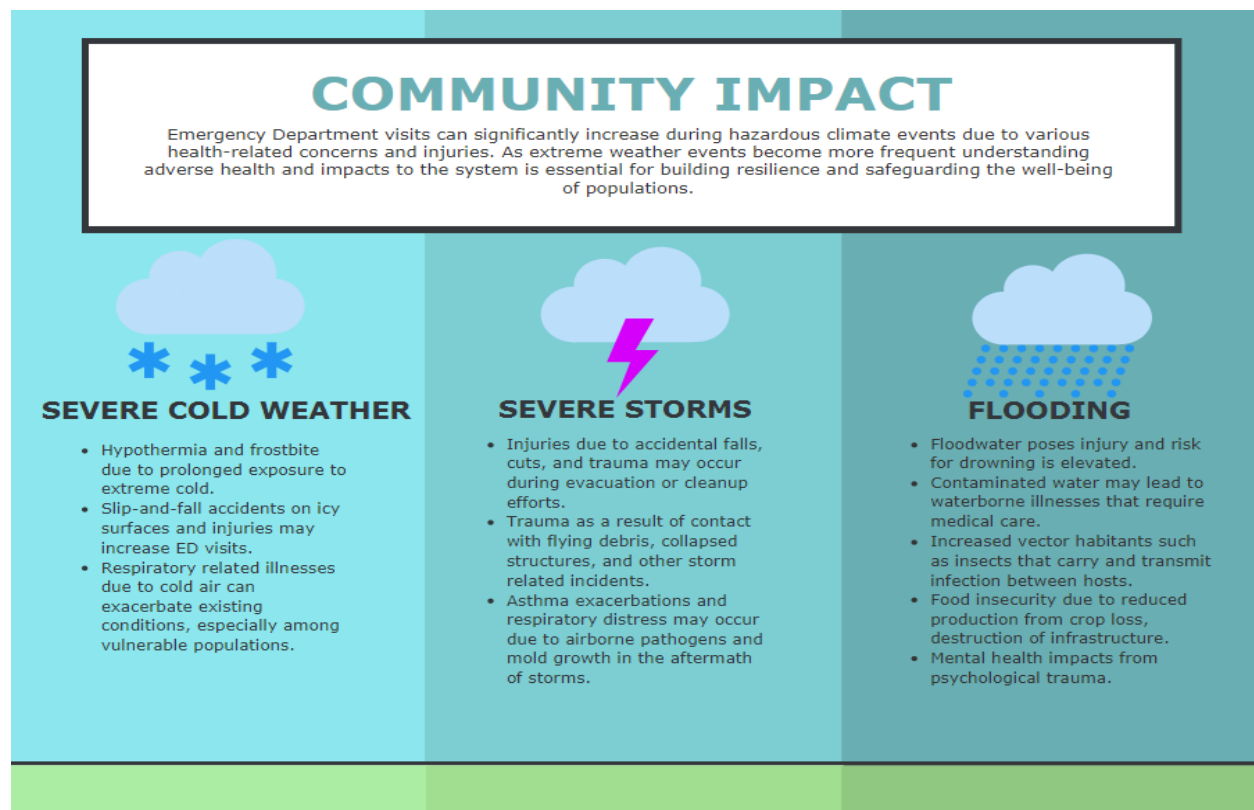


Figure 21. Public health impact due to weather related incidence in Washoe County.



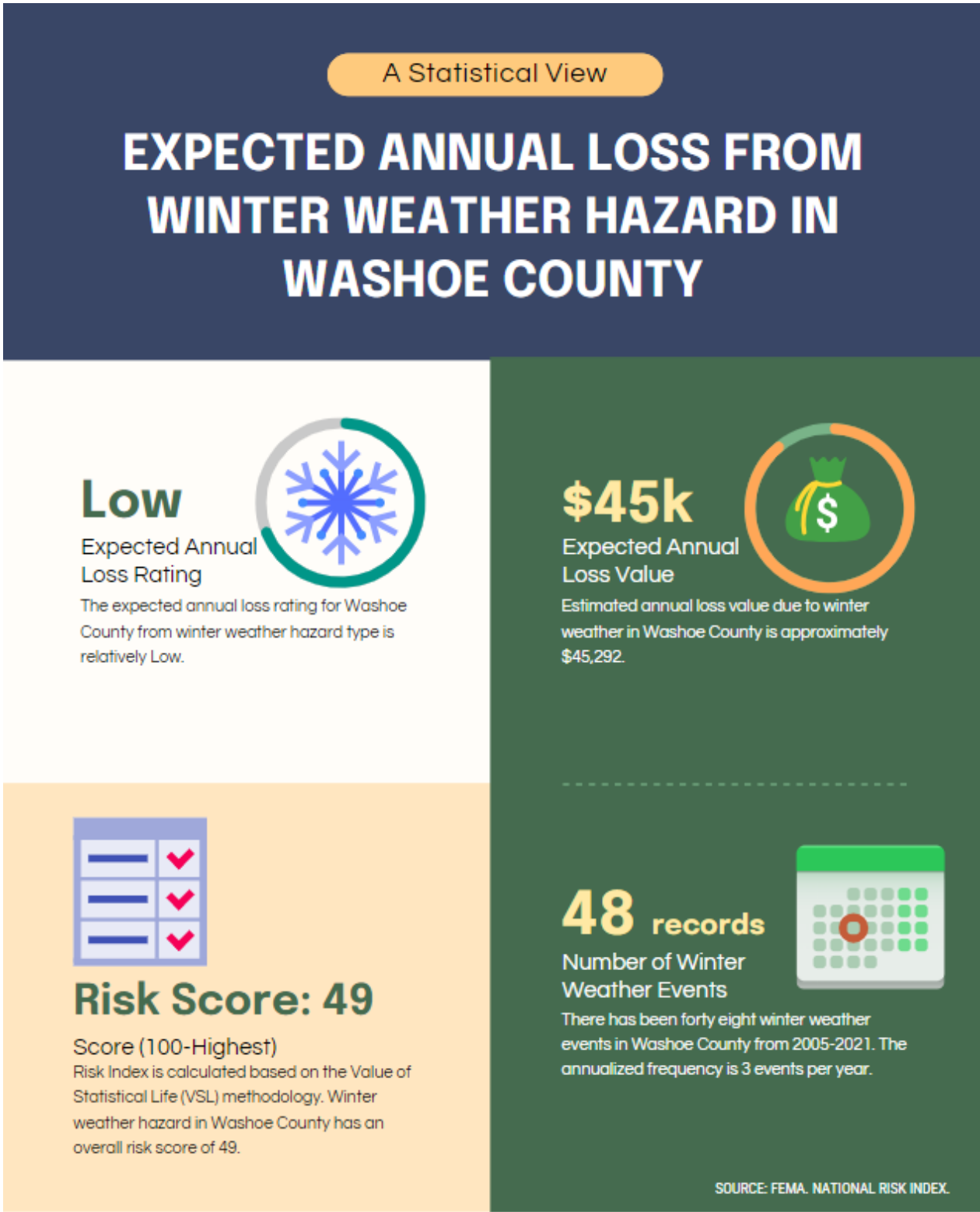


Figure 22. Expected Annual Loss and Risk from Winter Hazards in Washoe County: A Statistical Overview.

## FLOODING

**Riverine flooding** poses significant threats to communities, public health, and emergency preparedness, making it a critical concern for both urban and rural areas. This type of flooding occurs when rivers overflow their banks, inundating adjacent land and communities. The immediate dangers include drowning, injuries, and the risk of waterborne diseases. Floodwater can carry contaminants from various sources, such as sewage, industrial waste, and agricultural runoff, leading to waterborne illnesses like gastroenteritis and respiratory infections. Additionally, displaced populations often face challenges in accessing clean water, sanitation facilities, and healthcare services, exacerbating health risks. Mental health of individuals and communities is also profoundly impacted by riverine flooding. The trauma of losing homes, possessions, and, in some cases, loved ones can result in post-traumatic stress disorder (PTSD), anxiety, and depression. Displacement, uncertainty, and the disruption of daily life contribute to the overall psychological burden on affected populations. Preparedness is crucial in mitigating the impact of riverine flooding on public health. Early warning systems, community education, and evacuation plans play pivotal roles in reducing the risk of injuries and casualties. The Washoe County Emergency Management and Homeland Security [The Rave Alert](#) system is available for residents in the City of Reno and Sparks for notifications for community wide emergency events such as flooding. The Rave Alert system is a cloud-based software solution that provides real time information for rapid dissemination of information that helps save lives in the community. Access to safe cleaning water during these events is crucial. Truckee Meadows Stormwater Quality Management Program runs coordinated efforts in Washoe county to reduce and eliminate run-off pollution. To learn more about the program's water protection plan for both surface and groundwater sources, visit [Smart About Water](#) website.





Figure 23. Expected Annual Loss and Risk from Riverine Flooding Hazards in Washoe County: A Statistical Overview.

## STORIES IN THE FIELD - RIVERINE FLOODING

During March 2023, the National Weather Service (NWS) predicted an atmospheric river in the Reno-Tahoe area bringing heavy rain over full snowpack and waterways in Washoe County. High risk areas for flooding were identified in Lemmon Valley, surrounding Swan Lake, White Creek and Thomas Creek. The Washoe County Regional Emergency Operations Center (REOC) was on standby in addition to monitoring, sandbag placements in areas surrounding Toll Road and Geiger Grade. During this potential high-risk event, residents were encouraged to take preventive measures which include sandbagging and stocking essentials. Similar threat occurred during July 2024, when the NWS predicted storms bringing flash flooding to southeast Reno, and Hidden Valley. Over 100 homes were affected during this flash flood event. Emergency services were

mobilized to support residents in efforts to help protect their homes.



Figure 24. Impact of Flooding Events on Communities and Residential Areas.

# BE FLOOD READY

### Know where to get sandbags

If you live in a flood-prone area or have experienced flooding in the past, be on alert.

### Have an Emergency Kit

Officials recommend all residents have an emergency kit ready, including medications.

### Be aware of travel impacts

During flood events there may be temporary road closures. Never drive through standing water.

### Be prepared at home

Check ditches and culverts on or around your property. Remove any debris immediately.

**RENO** Reno.Gov/Flood  
(775) 334-4636

WashoeCounty.Gov  
3-1-1

CityofSparks.us/Flood  
(775) 353-2271

Figure 25. Be Flood Ready: Essential Tips for Preparing and Responding to Flood Event

## GLOSSARY OF TERMS

TERMS	DEFINITIONS
Community Points of Dispensing (POD)	Facilities designated for the rapid distribution of vaccines, medications, or medical supplies during public health emergencies.
Emergency Operations Plan (EOP)	Structured framework used by public health agencies to coordinate responses to emergencies, including disease outbreaks and natural disasters.
Emergency Medical Services (EMS)	System providing pre-hospital emergency care and transport for individuals experiencing medical emergencies.
Emergency Management	Field focused on preparing for, responding to, mitigating, and recovering from natural or human-made disasters.
<i>emPOWER</i>	Critical data, mapping tools, and resources to assist public health agencies and emergency planners in identifying and supporting individuals who rely on electricity-dependent medical equipment during emergencies.
Essential Services of Public Health	Framework guiding public health agencies in delivering fundamental health services, including preparedness, disease prevention, and health promotion
Extreme Heat Events	Prolonged periods of unusually high temperatures that can cause health emergencies, including heat exhaustion and heatstroke.
Flooding (Riverine Flooding)	The overflow of rivers into surrounding land, leading to property damage, health risks, and displacement of populations.
Incident Command System (ICS)	Standardized emergency management structure used for coordinating response efforts during disasters and public health emergencies.
Mass Casualty Incident (MCI)	A situation where the number of casualties exceeds available local medical resources, requiring an organized emergency response.
National Association of County and City Health Officials (NACCHO)	A nonprofit organization that supports and represent local health departments in the U.S., providing advocacy, funding, training, and resources to strengthen public health at the community level.
National Incident Management System (NIMS)	Comprehensive framework established by FEMA to guide public and private sector agencies in coordinating emergency response.
Nevada Revised Statutes (NRS)	Legal framework governing emergency preparedness and public health response in the state of Nevada.

Northern Nevada Public Health (NNPH)	Nationally accredited regional public health agency responsible for emergency preparedness, disease surveillance, and community health programs in Northern Nevada.
National Syndromic Surveillance Program (NSSP)	Real-time public health monitoring system used to detect emerging health threats, including disease outbreaks and environmental hazards.
Public Health Emergency Declaration	Formal declaration allowing authorities to allocate resources and enforce public health interventions during emergencies.
Syndromic Surveillance	The use of real-time health data to detect and monitor emerging public health threats, including infectious disease outbreaks and environmental hazards.
Triage	The process of prioritizing medical treatment based on the severity of injuries or conditions, commonly used in mass casualty incidents.
Washoe County Emergency Management	The regional agency responsible for coordinating disaster preparedness, response, and mitigation efforts within Washoe County.
Washoe County Regional Emergency Operations Center (REOC)	A centralized hub coordinating disaster response, resource allocation, and emergency operations across multiple agencies in a region.
Wildfire Prevention	Strategies and policies aimed at reducing the risk of wildfires, including controlled burns, firebreaks, and public education campaigns.

