



# STATE OF NEVADA MEETING NOTICE AND AGENDA NEVADA HAZARD MITIGATION WORKING GROUP

**Name of Organization:** Nevada Hazard Mitigation Working Group

**Date and Time of Meeting:** December 14, 2021, at 9:00 a.m.

**Place of Meeting:** There will be no physical location for this meeting. The meeting can be listened to, or reviewed live, over the Internet through the Nevada Division of Emergency Management YouTube channel at:  
<https://www.youtube.com/channel/UCFGa6exzrZdlqA6PP55kfqq>

**Conference Line Access:** Conference line #: (669) 219-2599  
Meeting ID# 686 738 8625  
When prompted for Participant ID, please press #

Current Voting Membership	
Name	Organization
Stephen Aichroth	Nevada Housing Division
Solomé Barton	North Las Vegas Emergency Management
Faith Beekman	Division of Public and Behavioral Health
Kathy Canfield	Storey County
John Christopherson	Nevada Division of Forestry
Craig dePolo	Nevada Bureau of Mines and Geology
Herman Fillmore	Washoe Tribe
Sheryl Gonzales	Western Nevada Development District (WNDD)
Clair Ketchum	National Oceanic and Atmospheric Administration (NOAA) - Federal
Andrew Trelease	Southern Nevada Regional Flood Control District
Lorayn Walser	Nevada Governor's Office of Energy
Erin Warnock	Nevada Division of Water Resources
Melissa Whipple	Nevada Division of Public and Behavioral Health

This meeting will be video or teleconferenced as specified beginning at 9:00 a.m. The Nevada Hazard Mitigation Working Group (“Working Group”) may act on items marked “For Possible Action.” Items may be taken out of the order presented on the agenda at the discretion of the Chair. Items may be combined for consideration by the Working Group at the discretion of the Chair. Items may be pulled or removed from the agenda at any time.

**Please Note:** Witnesses wishing to have their complete testimony/handouts included in the permanent record of this meeting should provide a written or electronic copy to the Working Group administrative support staff. Minutes of the meeting are produced in a summary format and are not verbatim.

1. **CALL TO ORDER AND ROLL CALL** – Chair, Lorayn Walser, Governor’s Office of Energy.
2. **PUBLIC COMMENT**– (Discussion Only) – No action may be taken upon a matter raised under this item of the agenda until the matter itself has been specifically included on an agenda as an item upon which action may be taken. Public comments may be limited to 3 minutes per person at the discretion of the Chair. Comments will not be restricted based on viewpoint.

To provide testimony during this period of public comment via telephone, please call in any time after 8:30 a.m. on the day of the meeting by dialing (669) 219-2599. When prompted to provide the Meeting ID, please enter 686 738 8625 and then press #. When prompted for a Participant ID, please press #. When asked to provide public comment, please press \*6 to unmute your phone and \*6 again when your comments are complete.

**Please be advised that the YouTube stream will be between 60-90 seconds behind the live meeting. If you would like to present public comment, please call in using the above number to hear the meeting live.**

3. **APPROVAL OF MINUTES** - (Discussion/For Possible Action) – Chair, Lorayn Walser, Governor’s Office of Energy. The Working Group will discuss and review the minutes of the September 27, 2021, Working Group meeting. The Working Group will determine whether to approve the meeting minutes.
4. **COMMUNITY FOCUS - NORTH LAS VEGAS HAZARD PRESENTATION** - (Discussion Only) – Solomé Barton, North Las Vegas Emergency Management, or her designee, will brief the Working Group on North Las Vegas area hazards and city demographics. Discussion will provide opportunity for the Working Group to hear hazard concerns for this community focus and allow further discussion for possible future mitigation projects.
5. **NEVADA ENHANCED STATE HAZARD MITIGATION PLAN STATUS UPDATE** - (Discussion Only) – Janell Woodward, Mitigation Officer, DEM/HS. Ms. Woodward will provide a briefing to the Working Group of the status of the current 5-year update cycle of the Nevada Enhanced State Hazard Mitigation Plan (HMP) due October 2023. Discussion will include the process to complete the required 5-year update of the State plan, where this process is currently, and the timeline of the update.
6. **MITIGATION GRANTS UPDATE** - (Discussion Only) – Janell Woodward, Mitigation Officer, DEM/HS – Ms. Woodward will provide an update of current mitigation grant opportunities and available funding for the Building Resilient Infrastructure and Communities (BRIC), Hazard Mitigation Grant Program (HMGP), and HMGP-Post Fire programs.
7. **BUILDING RESILIENT INFRASTRUCTURE AND COMMUNITIES (BRIC) APPLICATION REVIEW AND RANKING** – (Discussion/For Possible Action) – Janell Woodward, Mitigation Officer, DEM/HS. Ms. Woodward will lead the Working Group in a review of the submitted FY 2021 BRIC applications. The Working Group will evaluate the submitted applications to

determine the appropriate submission order for the State BRIC application. Applications for the State set-aside funding, as well as, any submitted competitive project applications will be evaluated. The Working Group may vote to approve the application submission order, which will be forwarded to the Chief of Emergency Management for final approval prior to the State BRIC application submission.

8. **APPROVED ABBREVIATIONS FOR USE WITH HAZARD MITIGATION PLANS AND UPDATES** – (Discussion Only) – Janell Woodward, Mitigation Officer, DEM/HS. Ms. Woodward will lead a discussion of the provided Nevada Resilience Advisory Committee (NRAC) list of approved abbreviations. The Working Group will discuss the use of this list for the State HMP update as well as all county HMPs moving forward to promote standardization of abbreviations within hazard mitigation plans across the state.

9. **PUBLIC COMMENT** – (Discussion Only) – No action may be taken upon a matter raised under this item of the agenda until the matter itself has been specifically included on an agenda as an item upon which action may be taken. Public comments may be limited to 3 minutes per person at the discretion of the Chair. Comments will not be restricted based on viewpoint.

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10. **ADJOURN** – (Discussion/For Possible Action)

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This is a public meeting. In conformance with the Nevada Public Meeting Law, this agenda was posted or caused to be posted on or before 9:00 a.m. on December 9, 2021, at the following:

Nevada State Emergency Operations Center, 2478 Fairview Drive, Carson City, NV; and

Posted to the following websites:

- Nevada Department of Public Safety’s Division of Emergency Management and Homeland Security Public Meeting Notifications/Information Website: [https://dem.nv.gov/DEM/DEM\\_Public\\_Meeting\\_Information/](https://dem.nv.gov/DEM/DEM_Public_Meeting_Information/)
- Nevada Public Notice Website: [www.notice.nv.gov](http://www.notice.nv.gov)

To navigate to Division of Emergency Management and Homeland Security administered meetings, please do the following:

- Within the Government Column, click **State**.
- Within the Entity Column, select **Office of the Military – Division of Emergency Management**.
- Within the Public Body column, click on the **Nevada Hazard Mitigation Working Group**; results will populate on the page.

We are pleased to make reasonable accommodations for members of the public who are disabled. If special arrangements for the meeting are necessary, or if there is a need to obtain copies of any supporting meeting materials, please notify Janell Woodward, Division of Emergency Management and

Homeland Security, at 775-687-0300. 24-hour advance notice is requested. Thank you. advance notice is requested. Thank you.



**STATE OF NEVADA  
MEETING MINUTES  
NEVADA HAZARD MITIGATION WORKING GROUP**

<b>Attendance</b>	<b>DATE</b>	September 28, 2021
	<b>TIME</b>	9:00 a.m.
	<b>METHOD</b>	Zoom and In-Person
	<b>RECORDER</b>	Janell Woodward

Appointed Voting Member Attendance					
Member Name	Present	Member Name	Present	Member Name	Present
Lorayn Walser– Chair	X	Herman Fillmore	X		
Steven Aichroth	ABS	Sheryl Gonzales	X		
Solome Barton	ABS	Clair Ketchum	ABS		
Faith Beekman	X	Andrew Trelease	X		
Kathy Canfield	X	Erin Warnock	X		
John Christopherson	X	Melissa Whipple	X		
Craig dePolo	X				

Legal/Administrative Staff		
Name	Agency	Present
Samantha Ladich – Senior Deputy Attorney General	Attorney General’s Office – DEM/HS DAG	X
Janell Woodward – Emergency Management	NDEM/HS	X
Mark Shugart – FEMA FIT	FEMA RIX	X

**1. CALL TO ORDER AND ROLL CALL**

Chair Lorayn Walser, Governor’s Office of Energy, called the meeting to order. Roll call was performed by Janell Woodward, DEM/HS. Quorum was established for the meeting.

**2. PUBLIC COMMENT**

Chair Walser opened the first period of public comment for discussion. There was no public comment.

**3. APPROVAL OF MINUTES**

Chair Walser requested a motion to accept the minutes from June 29, 2021 Working Group meeting. The Craig dePolo made a motion to approve the minutes as presented, Kathy Canfield seconded. All were in favor, motion carried.

**4. OVERVIEW OF OPEN MEETING LAW**

Ms. Ladich provided the Working Group with an overview of the Open Meeting Law. She is assigned this committee and her job is to ensure compliance with the Open Meeting Law. NRS Chapter 241 was shared, and Ms. Ladich indicated it is always good to look at the legislative intent of a law. Agenda, proper notice three days in advance of the meeting by 9 a.m., multiple options for public comment, items must be noted for proper action, must be public meeting. Quorum is established by simple majority. For this body, there are 13 members, and a quorum would be 7 members to have a meeting. Two legislative sessions ago the legislative session clarified proxies. Proxies or alternates do not count as quorum. The majority of members present are needed to approve a motion. Preparation is the biggest way to ensure compliance. Be careful of achieving a quorum outside of a meeting. Please do not reply all on email.

**5. CHIEF'S INTENT OF THE HAZARD MITIGATION WORKING GROUP**

Chief Fogerson recreated the Working Group after speaking with Janell, Kelli Anderson, and Susan Coyote. The Resilience Committee (Nevada Resilience Advisory Committee- NRAC) was created and numerous committees were brought up under the NRAC. A problem was noted in not having a committee that gave sufficient attention to the mitigation program so this Working Group was created. The requirements of an enhanced mitigation program were reviewed. All members serve on this Working Group at Chief Fogerson's desire. If members do not participate, he will remove them and replace them with someone who can participate. Participation in this Working Group is essential to its success.

The Federal government is looking to provide more mitigation funding to states and would like the states to expand their mitigation programs. Chief Fogerson would like this Working Group to look at the natural hazards in the state and how to mitigate them like how the preparedness program has state emergency managers look at the Threat and Risk Assessment (THIRA) for the state. There is currently only one mitigation staff member at NDEM. NDEM is looking at hiring a couple of contractors to assist in building this program.

The other ask of Chief Fogerson is to look at future disasters. Increased disasters are most likely going to continue. How can we take the funding we have for mitigation and use it in the best ways to increase resilience for Nevada? It is up to the State and this committee to provide support to locals. He does not want to put any edges on what we are doing. The committee should start thinking about how we start buying down risks. Look at technology and people hazards, in addition to the normal natural hazards. The committee should think global big picture.

Chief Fogerson appreciated Working Group members and the work that they are doing, His door is always open if there are any questions or concerns.

## 6. CARSON CITY HAZARD PRESENTATION

Deputy Chief Jason Danen provided an overview of the demographics of Carson City. There is a population of 54,000, with mild temperatures, 24" of snow each year.

From the Carson City Hazard Mitigation Plan, the biggest hazards they are concerned with are earthquakes fires, and floods, as well as severe weather and acts of violence. Drought continues to be a concern as well as pandemic. There is a hazardous materials concern as well though there are no railways but there are some commercial businesses. Cybersecurity has been a big issue that Carson City is concerned with potential of city infrastructure being hacked and shutting down ability to function. As the Capital City of Nevada, acts of violence is a concern. Cascading events that occur in other areas can affect Carson City. An example was the Caldor Fire which evacuated 25,000 people from Lake Tahoe and most ended up down in the Carson City area. This affects ability to function as the requirements are more than their current resources allow.

Rodd Rummel, Fuels Management Officer, provided a presentation on overview on wildfire in the Carson City area. Wildfire has no boundaries. He provided history of wildfire in Carson City, effects of wildfire, what is being done to mitigate, etc. See the presentation as attachment to this meeting.

This is not just a California problem with huge fires. Nevada has a wildfire issue as well. Nevada has its own share of wildfire burning in over 1 million acres in the past. Wet winters give large fuel growth and result in fires. This is a natural process.

When the trees burn, there is a fuel shift as the grass grows and changes the fuel. Eventually trees will come back. When a highway is shut down, commerce is not coming in which affects businesses.

Wildland fire is a natural part of the ecosystem. You cannot stop wildfire, but you can mitigate the effects to people. What is Carson City doing to mitigate the wildfire risk? They have several programs, one of which is called "You Call, We Haul." This is a trailer program with four trailers and four dumpsters where citizens remove fuels from around their structures and then call and the Fire Department will come and haul away that brush. They have hand crews that go out and remove fuels. Last year they collected 400 tons of fuel. Homeowners are invested in this program doing their own work to protect their own property. They also have a new owner. A list is provided from the Assessor's Office and they pull out the new homeowners and visit them within 60 days to provide risk of the area.

Discussion also included losses avoided wins related to work that NV Energy accomplished with cleaning out vegetation from the bottom of power poles.

All of their programs are grant funded. Without this grant funding, they would not be able to provide these mitigation services.

## 7. CARSON CITY EARTHQUAKE RISK

Dr. Craig dePolo provided an overview of the Carson City area earthquake risk. The reader is directed to the posted presentation. Carson City has the highest risk in the Basin and Range. Dr. dePolo provided information on the history of earthquakes in the area. The 1887 earthquake was the largest earthquake in the area.

## Draft meeting minutes

There are many faults out there which are not yet mapped.

The good news for Nevada is that the state invests in building safe buildings. It does not improve old buildings and these buildings are still vulnerable.

Building codes contain the seismic provisions. Newer buildings all have the newer codes and the Earthquake Safety Council was instrumental in getting counties to adopt those codes. The buildings are much safer. The concern is with older buildings. There is a 78% chance of having an earthquake within 50 kilometers of Carson City in the next 50 years causing cracking of walls and shaking that causes fear in people. There is a little over 50% chance of an intensity score of VII earthquake causing chimney damage and requiring emergency response in 50 years. Chances of intensity 8 causing recovery issues and more damage, there is a 1 in 5 to 1 in 4 chance that could happen in Carson City within 50 years. A very large earthquake has a 6-10% chance. These are probabilities to pay attention to.

The Genoa fault is similar to the Wasatch fault in Salt Lake City, Utah.

Rock falls and landslides are also associated with earthquakes. Aftershocks should also be expected. Liquefaction can happen as well as fire after earthquake. Carson City has addressed the threats with strong building codes and inventory of vulnerable buildings. Public awareness is probably down in Carson City as well as the rest of the state though we do have The Great Shakeout drill. There are concerns of unreinforced masonry buildings where there could be potential injuries in a larger earthquake.

The State has done a good job on mitigating state buildings regarding building safety. The communities are the next step in addressing the unreinforced masonry buildings.

We have lost our State guidance without the Earthquake Safety Council so it is up to the counties and cities now to take up this messaging. We have also lost our momentum on unreinforced masonry buildings. Our urban preparedness is also diminished. Earthquake messaging is not taken to heart. Nevada is the third most active state for seismic activity. The entire focus is on when is the next earthquake going to happen.

NOTE: A 5-minute break occurred with a rollcall afterward which confirmed a quorum still existed.

### **8. STATE HAZARD MITIGATION PLAN STATUS UPDATE**

Ms. Woodward provided an update to the Working Group of the basic process of completing the FEMA-required 5-year update to the State Enhanced Hazard Mitigation Plan. The timeline of the update was reviewed. All hazard sections have been provided to the subject matter experts to be updated outside of the Working Group. These updates are due in January 2022 and will be reviewed by the Working Group. Discussion also included the addition of Drought to the mitigation actions section of the plan as an amendment to the current plan so that agencies are able to apply for these types of projects.



**9. MITIGATION GRANTS UPDATE**

Ms. Woodward provided an update to the Working Group regarding current FY 21 mitigation grant opportunities available. The BRIC grant was announced in August 2021 and the application period is currently open. The deadline for completed applications in the FEMA GO system is December 3 so that we have time to review and rank applications. There is \$1 million available in State set-aside funding meaning that anything submitted within that \$1 million will be funded if the application is eligible. HMGP-Post Fire for FY 20 applications are due to FEMA by March 31, 2022. The focus is Washoe County and Douglas Counties as this is where the three fires occurred. Finally, the HMGP funding because of COVID is due to FEMA by August 5, 2022. The deadline for HMGP applications is June 30, 2022, again for the review process. With HMGP application, these applications will also be funded if they are eligible projects. Please reach out to Janell Woodward with any questions or for technical assistance.

**10. PUBLIC COMMENT**

Chair Walser opened the second period of public comment and there was none.

**11. ADJOURN**

Chair Walser asked for a motion to adjourn. Craig dePolo made the motion and Andrew Trelease seconded. All were in favor and the meeting was adjourned.

DRAFT

# City of North Las Vegas

*THE GROWTH CONTINUES*



# The Story

- ▶ City of North Las Vegas incorporated in 1946
- ▶ 130 Square miles within Clark County
- ▶ Stretches across northern rim of the Las Vegas Valley, including the Apex/Kapex areas.
- ▶ Population currently at approximately 265,000, with an estimated reach of 335,622 in 2035
- ▶ North Las Vegas continues to shine as a major industrial center



# Industry Growth



- ▶ Industry growth emphasis on:
  - ▶ Light manufacturing,
  - ▶ Regional distribution,
  - ▶ Relocation of high tech businesses, and
  - ▶ Custom manufacturing
- ▶ 2nd busiest airport in state for business & tour operations

# Community Partners (Established and New)



## Tapestry, Inc. Breaks Ground at North Las Vegas Fulfillment Center

*Strengthens Omni-Channel Solutions*

*Further Enhances Product Availability and Service*



Rendering of Tapestry's North Las Vegas Fulfillment Center (Graphic: Business Wire)



## Air Liquide

Plant expected to open in November, begin operations in early 2022

# Hazards & Mitigation

- ▶ City is exposed to many hazards with potential to disrupt the community
- ▶ Participation in annual extensive multi-jurisdictional and state collaboration in conducting a thorough Threat & Hazard Identification Risk Assessment (THIRA)
- ▶ Comprehensive Hazard Mitigation Plan enables the City to conduct a consequence analysis for each top hazard and to prioritize actions



# Types of Hazards

- ▶ Natural Hazards (earthquakes, severe weather, infectious disease)
- ▶ Technological Hazards (factory/manufacturer accidents, fires, power-outages, cybersecurity)
- ▶ Human-Caused Threats & Hazards (hazardous materials incidents, active shooter incidents)

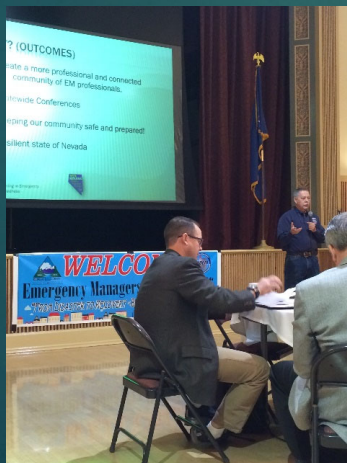
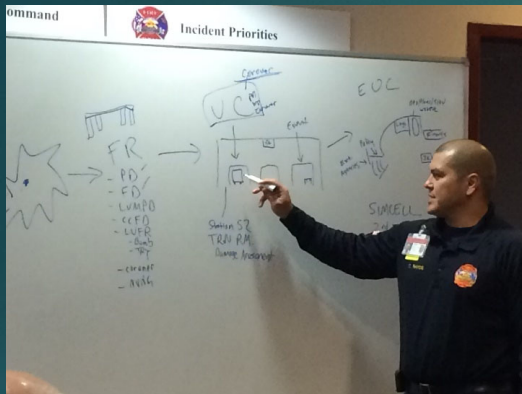
TYPES OF HAZARDS		
<b>Natural</b> These events are emergencies caused by forces extraneous to man in elements of the natural	<b>Technological</b> These events are emergencies that involve materials created by man and that pose a unique hazard to the	<b>Adversarial or Human Caused</b> These are disasters created by man, either intentionally or by accident. Examples of such hazards are acts of

# High & Moderate Hazard Facilities in NLV

- ▶ With growth, risk assessments have to be conducted to assist in mitigation efforts
- ▶ There are a number of high hazard facilities in NLV
  - ▶ Facilities that utilize Anhydrous Ammonia for cold storage
  - ▶ Facilities that utilize Cryogenics for parts manufacturing
  - ▶ Facilities that utilize Natural Gas for fuel
  - ▶ Facilities that manufacture Liquid Nitrogen for distribution and transportation
- ▶ There are a number of moderate hazard facilities in NLV
  - ▶ Schools, hospitals, hotels, recycling plants, etc.



# Training and Exercises



# Collective narrative



- ▶ Having a close relationship with our community partners to include the residents, and understanding what is in our neighborhoods and backyards.
- ▶ Understanding how we can work together for a safe community goes a long way.
- ▶ Maintaining that open dialogue with our community partners and keeping them engaged by including them in training classes and exercises can strengthen that relationship.
- ▶ Preparedness and Mitigation leads to Resiliency during Recovery.

# References

- ▶ Tapestry: <https://www.businesswire.com/news/home/20211116006367/en/Tapestry-Inc.-Breaks-Ground-at-North-Las-Vegas-Fulfillment-Center>
- ▶ Air Liquide: <https://fuelcellworks.com/news/new-hydrogen-fuel-plant-in-nevada-launches-greater-role-for-hydrogen-fuel-cell-vehicles-in-zero-emission-transportation-mix/>
- ▶ Fanatics: <https://www.reviewjournal.com/local/north-las-vegas/fanatics-to-hire-200-people-for-north-las-vegas-warehouse/>
- ▶ Amazon: <https://www.reviewjournal.com/business/amazon-opens-new-facility-in-north-las-vegas-amid-warehouse-boom-2450641/>
- ▶ 2018 THIRA & SPR Guide
- ▶ 2018 Clark County Multi-Jurisdictional Hazard Mitigation Plan for Comprehensive Risk Assessment
- ▶ 2021 CNLV All Hazard Emergency Operations Plan

# The End

▶ Questions?

- ▶ Solomé Barton
- ▶ Email: [bartons@cityofnorthlasvegas.com](mailto:bartons@cityofnorthlasvegas.com)
- ▶ Phone: (702) 633-1125



**State of Nevada**

Completely fill out this section for each application:

<b>Applicant:</b>	<b>Total Score:</b>
<b>Reviewed By:</b>	<b>Federal Amount Requested:</b>
<b>Type in the full name of the project:</b>	

Project Type (select only one)	Possible Points	Points
Seismic	25	
Flood Reduction (drainage, basins, other)	25	
Bank Stabilization	25	
Landslide Acquisition / Demolition	25	
Wildfire	25	
Non-structural seismic	20	
Other (not listed above)	20	
<b>Project Type Total (max 25)</b>	max 25	

Site Vulnerability	Possible Points	Points	Comments
Project is sound mitigation	1 - 10		
Project reduces hazard effects	1 - 10		
Applicant has the capacity to finish the project within the time frame	1 - 10		
Best solution to address the risk	1 - 10		
Project provides loss reduction	1 - 10		
<b>Site Vulnerability Total (max 50)</b>	max 50		

Project Benefits	Possible Points	Points	Comments
Project protects life and/or property	1 - 10		
Project protects critical infrastructure	1 - 10		
Project benefits the community	1 - 10		
Project relates to the local and State mitigation plans	1 - 10		
Project provides a long term solution	1 - 10		
<b>Project Benefits Total (max 50)</b>	max 50		

Other Considerations	Yes/No		Comments
Is the project application complete and does it include all attachments?	Yes (1 point)	No (0 points)	
Hazard location and resulting problems are clearly described and documented?	Yes (1 point)	No (0 points)	
Does the project have a Benefit Cost Ratio greater than 1.00?	Yes (1 point)	No (0 points)	
Is the Benefit Cost Analysis attached including all supporting documentation?	Yes (1 point)	No (0 points)	
Does the jurisdiction have a current FEMA-approved multi-hazard mitigation plan?	Yes (1 point)	No (0 points)	
Is the Scope of Work narrative complete and clear? (Do you understand what the project is?)	Yes (1 point)	No (0 points)	
Is the jurisdiction committing to provide at least a 25% Match? ("Proposed Non-Federal Share" greater than or equal to 25%)	Yes (1 point)	No (0 points)	
Has work started or Is the Project Complete?	Yes (0 points)	No (1 point)	
Is the Budget detailed, clear and easy to understand? Are the costs reasonable for the proposed activity?	Yes (1 point)	No (0 points)	
Do you think this is a good mitigation project?	Yes (1 point)	No (0 points)	
<b>Other Considerations Total (max 10)</b>	max 10		

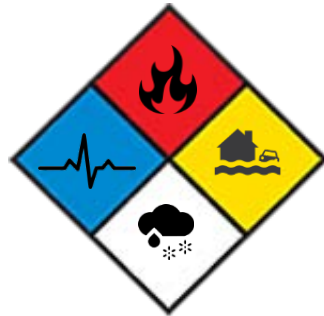
<b>Total Points (max 135)</b>	max 135
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Do you have any other comments about this application?	
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# NEVADA

## THREATS & HAZARDS



**Division of Emergency Management  
Office of Homeland Security**

**September 2020**



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Nevada Department of  
**Public Safety**  
Division of Emergency Management  
Office of Homeland Security

## **Statement of Purpose**

The Nevada Resilience Advisory Committee is focused on supporting emergency management, emergency response, and homeland security efforts through providing recommendations to the Governor and community to ensure resiliency.

Upon further research, FEMA, state agencies, and local jurisdictions were using various terms to define specific threats and hazards. In order to support this effort, DEM has developed a standardized list of threats and hazards to be used in the planning process.

The standardized list of terms combines FEMA definitions with a list of hazards specific to geography and industry in Nevada. This document is also a tool that may be used for jurisdictions to facilitate their THIRA/SPR planning, plan development and updates, and grant applications through DEM and DHS.



## Active Assailant

An Active Shooter / Assailant is an individual actively engaged in killing or attempting to kill people in a confined and populated area; in most cases, active shooters / assailants use firearms(s) and there is usually no pattern or method to their selection of victims, though situations vary. These situations are unpredictable and evolve quickly. Typically, the immediate deployment of law enforcement is required to stop the shooting and mitigate harm to victims.

Because these situations are often over within 10 to 15 minutes, before law enforcement arrives on the scene, individuals must be prepared both mentally and physically to deal with an active shooter situation.

### Barricade Situation

A subject who is believed to have been involved in a criminal act or is a significant threat to themselves or safety of others; refuses to submit to arrest and may be armed; is in a position of advantage, affording cover and concealment; or is contained in an open area, and the presence or approach of police officers could precipitate an adverse reaction by the subject.

### Hostage Situation

A person who uses hostages to effect an escape, commit crime, or further a cause, and poses a clear and present danger to the hostages and to the public at large. Therefore, an incident in which a hostage taker has taken hostages is a hostage incident.



## Air Quality

### Carbon Emissions

Carbon Dioxide emissions are a threat to humans, animals and plant life. The burning of fossil fuels (mostly from sources like power generation/distribution of the power grid, transportation and industrial processes) releases carbon dioxide and other greenhouse gases. These carbon emissions raise global temperatures by trapping solar energy in the atmosphere, contaminates air quality and water supplies, exacerbates weather patterns, changes the growing season for food crops, threatens coastal communities and deteriorates the ozone layer which in turn increases health risks. Emissions have become a quality of life (livability index) indicator for many states.

### Inversion

A temperature inversion can be defined as a phenomenon through which a rise in temperature takes place as altitude increases in a layer of air. Inversions play an important role in determining cloud forms, precipitation, and visibility. Wintertime temperature inversions trap pollution in valleys and can increase particulate matter levels to concentrations exceeding federal air quality standards. Diffusion of dust, smoke, and other air pollutants is limited by inversion and affects diurnal variations in air temperature which impacts weather with abnormal patterns and consequently affects plants, humans and animal life.

### Smoke

The smoke released by any type of fire (forest, brush, crop, structure, tires, waste or wood burning) is a mixture of particles and chemicals produced by incomplete burning of carbon-containing materials. All smoke contains carbon monoxide, carbon dioxide and particulate matter (PM or soot), but can also contain many different chemicals, depending on what is burning, how much oxygen is available, and the burn temperature. Nevada is vulnerable to smoke transport from wildfires in California and Oregon. Exposure to high levels of smoke has a variety of health impacts to humans and animal life.



## **Chemical, Biological, Radiological, Nuclear & Explosives (CBRNE)**

A hazardous materials incident is a situation in which harmful substances are released into the environment. These types of releases are often classified as chemical, biological, radiological, nuclear or explosives (CBRNE).

Intentional releases of hazardous materials include criminal acts, such as purposeful dumping by industries to avoid regulatory requirements, or terrorist acts that target a specific location, possibly involving a dispersal device or explosive.

### **Chemical**

The security/theft, storage, transport, and release of Industrial Chemicals and Materials as an incident of terrorism are additional areas of concern for the community. The determination of accidental vs. intentional response may be dependent upon investigation after the initial mitigation and response. The response to a chemical event should encompass safety procedures suitable to the circumstances as evaluated by responding agencies.

### **Biological**

The security/theft, storage, transport, and release of Biological Materials which has the ability to impact the community may also be considered for the purpose of Biological Terrorism.

### **Radiological**

The security/theft, storage, transport, and release of available Industrial/Medical Radiological Isotopes creates additional areas of concern for potential terrorism.

### **Nuclear**

Nuclear warfare, is a military conflict or political strategy in which nuclear weaponry is used to inflict damage on an opponent. Compared to conventional warfare, nuclear warfare can be vastly more destructive in range and extent of damage, and in a much shorter time frame. A major nuclear exchange could have severe long-term effects, primarily from radiation release, but also from the production of high levels of atmospheric pollution leading to a "nuclear winter" that could last for decades, centuries, or even millennia after the initial attack.

### **Explosives**

The use of high explosive to project blast and/or fragmentation from a point of detonation.

Explosive weapons may be subdivided by their method of manufacture into explosive ordnance and improvised explosive devices (IEDs). Certain types of explosive ordnance and many improvised explosive devices are sometimes referred to under the generic term bomb.



## Civil Disturbance

Civil disturbance hazards encompass a set of hazards emanating from a wide range of possible events that cause civil disorder, confusion, strife, and economic hardship. Civil disturbance hazards include the following:

- Economic Collapse, Recession; Very slow or negative growth.
- Misinformation; erroneous information spread unintentionally.

### Riot

An assembly that constitutes a clear and present danger of violent or unlawful acts, including, civil unrest, destruction of property, arson, looting, or when another immediate threat to public safety, peace, or order appears.



## Cybersecurity

Cyber security is the practice of defending computers, servers, mobile devices, electronic systems, networks, and data from malicious attacks. It's also known as information technology security or electronic information security.

Common Types of Cybersecurity:

- **Network Security** protects network traffic by controlling incoming and outgoing connections to prevent threats from entering or spreading on the network.
- **Data Loss Prevention (DLP)** protects data by focusing on the location, classification and monitoring of information at rest, in use and in motion.
- **Cloud Security** provides protection for data used in cloud-based services and applications.
- **Intrusion Detection Systems (IDS) or Intrusion Prevention Systems (IPS)** work to identify potentially hostile cyber activity.
- **Identity and Access Management (IAM) use** authentication services to limit and track employee access to protect internal systems from malicious entities.
- **Antivirus/anti-malware** solutions scan computer systems for known threats. Modern solutions are even able to detect previously unknown threats based on their behavior.



## Drought

Drought is defined as a prolonged period during which there is an extended deficit of precipitation below normal amounts over one or more seasons spread over a considerable geographical area. This differs from normal desert conditions that exist in Nevada where county-average annual precipitation ranges from four inches per year in Clark County to 12 inches in Storey County, averaging nine inches per year statewide making it the driest state in the U.S.

Severity of drought can be aggravated by other factors such as high temperature, high wind, and low relative humidity.



## Fire

### Urban Conflagration

Large, destructive fire that spreads beyond natural or artificial barriers in urban areas; it can be expected to result in large monetary loss and may or may not include fatalities. Urban conflagration moves beyond a block and destroys whole sections of a city.

### Wildland Fire

A wildland fire is an unplanned fire that burns in a natural area such as a forest, grassland, or prairie resulting in ruined homes and possible injury/death to people and animals. Wildfires can:

- Often be caused by humans or lightning.
- Cause flooding or disrupt transportation, gas, power, and communications.
- Happen anywhere, anytime. Risk increases with in periods of little rain and high winds.

### Wildland Urban Interface

Wildland-urban interface is a place where humans and their development meet or intermix with wildland fuel. Communities that are within 0.5 miles (0.80 km) of the zone are included



## Floods, Landslides & Debris Flow

### Alluvial Fan Flooding

Alluvial fan flooding is characterized by a sudden torrent of water capable of carrying rocks, mud, and debris that debouches from the steep valleys and canyons and spreads over the fan surface.

### Flash Flood

Flash Floods are most often caused by extremely heavy rainfall from thunderstorms. Flash Floods can occur due to Dam or Levee Breaks, and/or Mudslides

### Landslides & Debris Flow

In a landslide, masses of rock, earth or debris move down a slope. Debris and mud flows are rivers of rock, earth and other debris saturated with water. They develop during intense rainfall, runoff, or rapid snowmelt, changing the earth into a flowing river of mud or "slurry." They can flow rapidly, striking with little or no warning at avalanche speeds (faster than a person can run). They also can travel many miles from their source, growing as they pick up trees, boulders, cars and other materials.

### Riverine

Riverine flooding, occurs when excessive rainfall over an extended period of time causes a river to exceed its capacity. It can also be caused by heavy snow melt and ice jams. The damage from a river flood can be widespread as the overflow affects smaller rivers downstream, often causing dams and dikes to break and swamp nearby areas.



## Geohazards

### Avalanche

An avalanche is a large amount of snow moving quickly down a mountain, typically on slopes of 30 to 45 degrees. When an avalanche stops, the snow becomes solid like concrete and people are unable to dig out. People caught in avalanches can die from suffocation, trauma, or hypothermia.

### Earthquakes

An earthquake is a sudden, rapid shaking of the earth as plates shift, rock cracks beneath its surface, and large plates either collide or try to push past one other. As rocks and the earth's plates are strained by these tremendous geological processes, energy builds up under the earth's surface and eventually releases abruptly in seismic waves that shake the earth's surface.

### Fissures & Subsidence

A fissure is a fracture or crack in rock along which there is a distinct separation; fissures are often filled with mineral-bearing materials. Subsidence is the sinking of the ground because of underground material movement—is most often caused by the removal of water, oil, natural gas, or mineral resources out of the ground by pumping, fracking, or mining activities. Subsidence can also be caused by natural events such as earthquakes, soil compaction, glacial isostatic adjustment, erosion, sinkhole formation, and adding water to fine soils deposited by wind.

### Volcanoes

A volcano is an opening in the Earth's crust that allows molten rock, gases, and debris to escape to the surface. Alaska, Hawaii, California, and Oregon have the most active volcanoes, but other states and territories have active volcanoes, too. A volcanic eruption may involve lava and other debris that can flow up to 100 mph, destroying everything in their path. Volcanic ash can travel 100s of miles and cause severe health problems.



## Infectious Disease

### Emerging Disease with Epidemic or Pandemic Potential

An emerging disease with epidemic potential is a disease with new or emerging features that challenge control. This does not include highly-transmissible respiratory viruses, which are addressed under "Respiratory virus with pandemic potential". Emerging diseases are difficult to contain or treat and present significant challenges to risk communication since mechanics of transmission, laboratory identification, and effective treatment protocols may be unknown.

This includes the intentional or accidental release of a biological weapon or synthetic pathogen for which there is no antidote or cure. Previous events that fit this hazard include Ebola, Zika, the emergence of HIV, and the current opioid epidemic.



## Infectious Disease (cont.)

### Respiratory Virus with Epidemic or Pandemic Potential

A respiratory virus with pandemic potential is a highly contagious respiratory virus that spreads easily from person to person and for which there is little human immunity. This hazard includes pandemic influenza. This hazard strains the healthcare system, requires school closures, causes high rates of illness and absenteeism that undermine critical infrastructure across the city, and decreases community trust due to social distancing measures interfering with personal movement and being perceived as being ineffectual.

Previous events that exemplify this hazard include the 1918 (“Spanish flu”) and 2009 (“Swine flu”) influenza pandemics and the 2019-2020 Coronavirus Pandemic (“COVID-19”).



## Infrastructure

### Dam Failure

Dams are water storage, control or diversion structures that impound water upstream in reservoirs.

Dam failure can take several forms, including a collapse of, or breach in, the structure. While most dams have storage volumes small enough that failures have few or no repercussions, dams storing large amounts can cause significant flooding downstream.

### Natural Gas Pipeline Incident

An event that involves a release of gas from a pipeline, or of liquefied natural gas, liquefied petroleum gas, refrigerant gas, or gas from a facility, and that results in one or more of the following consequences:

- A death, or personal injury necessitating in-patient hospitalization;
- Estimated property damage of \$50,000 or more, including loss to the operator and others, or both, but excluding cost of gas lost;
- Unintentional estimated gas loss of three million cubic feet or more;

### Power Outage

A power outage is when the electrical power goes out unexpectedly. Can disrupt communications, water, transportation, close businesses, stores, banking services and gas stations. Medical devices may be unable to function and food spoilage/water contamination can occur.



## Seiche

Seiches are typically caused when strong winds and rapid changes in atmospheric pressure push water from one end of a body of water to the other. When the wind stops, the water rebounds to the other side of the enclosed area. The water then continues to oscillate back and forth for hours or even days. In a similar fashion, earthquakes, tsunamis, or severe storm fronts may also cause seiches along lake shelves and lake harbors.



## Severe Weather

Severe weather can include hazardous conditions produced by thunderstorms, including damaging winds, tornadoes, large hail, flooding and flash flooding, and winter storms associated with freezing rain, sleet, snow and strong winds.

### Extreme Heat

Extreme heat is a period of high heat and humidity with temperatures above 90 degrees for at least two to three days. In extreme heat your body works extra hard to maintain a normal temperature, which can lead to death.

### Microburst

A small concentrated downburst that produces an outward burst of strong winds at or near the surface. Microbursts are small – less than 4 km across – and short-lived, lasting only five to 10 minutes, with maximum windspeeds sometimes exceeding 100 mph. There are two kinds of microbursts: wet and dry. A wet microburst is accompanied by heavy precipitation at the surface. Dry microbursts, common in places like the high plains and the intermountain west, occur with little or no precipitation reaching the ground.

### Straight-Line Winds

Term used to define any thunderstorm wind that is not associated with rotation and is used mainly to differentiate from tornadic winds.

### Thunderstorms & Lightning

Lightning is a leading cause of injury and death from weather-related hazards. Although most lightning victims survive, people struck by lightning often report a variety of long-term, debilitating symptoms. Thunderstorms are dangerous storms that include lightning and can:

Include powerful winds over 50 MPH; create hail; and cause flash flooding and tornadoes.

### Tornado

A violently rotating column of air touching the ground, usually attached to the base of a thunderstorm. Some tornadoes are clearly visible, while rain or nearby low-hanging clouds obscure others. Tornadoes develop extremely rapidly and may dissipate just a quickly. Most tornadoes are on the ground for less than 15 minutes.

### Winter Storms & Extreme Cold

Winter storms create a higher risk of car accidents, hypothermia, frostbite, carbon monoxide poisoning, and heart attacks from overexertion. Winter storms and blizzards can bring extreme cold, freezing rain, snow, ice, and high winds.





## Terrorism

### International Terrorism

Criminal acts committed by individuals and/or groups who are inspired by, or associated with, designated foreign terrorist organizations or nations (state-sponsored). These acts could involve cyber threats, and disruptions of continuity of community with critical infrastructure failure.

### Domestic Terrorism

Violent, criminal acts committed by individuals and/or groups to further ideological goals stemming from domestic influences, such as those of a political, religious, social, racial, or environmental nature.

### Complex Coordinated Attack

A Complex Coordinated Attack (CCA), also known as a Complex Coordinated Terrorist Attack, is a violent assault or series of assaults by one or more individuals or groups with various motives including terrorist ideology, using one or more type of weapons with the intent to inflict harm on large numbers of people. Complex coordinated attacks are an evolving and dynamic threat, shifting from symbolic, well-planned attacks on high-visibility targets to attacks that are more dispersed and difficult to detect.

Attackers may employ the following tactics, which differentiate a CCA from other types of incidents:

- Use of well-armed, well-trained individuals in small teams employing military or law enforcement style tactics;
- Strike multiple targets simultaneously or in close succession;
- Strike quickly and move to another location before law enforcement can interdict and disrupt;
- Delay or deny entry and exit to victims and first responders by blocking exits and/or chaining/rigging doors with explosives, using tear gas, and/or using fire/smoke to delay law enforcement response efforts and potentially prolong the incident;
- Deploy diversions to slow public safety response, consume responder resources, or draw responders toward or away from specific locations;
- Coordinate timing and methods (e.g., firearms, improvised explosive devices, hazardous materials) with other attackers and accomplices providing assistance to the attackers; and
- Conduct secondary attacks on first responders, evacuation routes, and/or additional sites, such as medical facilities, that are part of the response.



## Transportation

### Aviation Accidents & Incidents

An aviation accident is an occurrence associated with the operation of an aircraft, which takes place from the time any person boards the aircraft with the *intention of flight* until all such persons have disembarked, and in which:

- a) a person is fatally or seriously injured
- b) the aircraft sustains significant damage or structural failure, or
- c) the aircraft goes missing or becomes completely inaccessible.

### Motor Vehicle Collision

A motor vehicle collision (MVC) occurs when a vehicle collides with another vehicle, pedestrian, animal, road debris, or other stationary obstruction, such as a tree, pole or building. Traffic collisions often result in injury, disability, death, and property damage as well as financial costs to both society and the individuals involved.

### Marine Incidents

Marine incidents are an event, or sequence of events, other than a marine casualty, which has occurred directly in connection with the operations of a ship that endangered, or, if not corrected, would endanger the safety of the ship, its occupants or any other person or the environment. Marine incidents include hazardous incidents and near misses.

### Railway Incidents

Railway incidents include collisions, derailments, and other events involving the operation of on-track equipment and causing reportable damage above an established threshold; impacts between railroad on-track equipment and highway users at crossings; and all other incidents or exposures that cause a fatality or injury to any person, or an occupational illness to a railroad employee.

Accidents/incidents are divided into three major groups for reporting purposes.

- Train accidents. A safety-related event involving on-track rail equipment causing monetary damage to the rail equipment and track above a prescribed amount.
- Highway-rail grade crossing incidents. Any impact between a rail and highway user both motor vehicles and other users of the crossing as a designated crossing site, including walkways, sidewalks, etc., associated with the crossing.
- Other incidents. any death, injury, or occupational illness of a railroad employee that is not the result of a "train accident" or "highway-rail incident."