



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

<b>Attendance</b>	<b>DATE</b>	August 30, 2022
	<b>TIME</b>	10:00 a.m.
	<b>METHOD</b>	Zoom
	<b>RECORDER</b>	Ryan Gerchman

Appointed Voting Member Attendance					
Member Name	Present	Member Name	Present	Member Name	Present
Lorayn Walser– Chair	X	Andrew Trelease	X		
Steven Aichroth	X	Erin Warnock	X		
Solome Barton	X	Melissa Whipple	X		
Faith Beekman	X				
Kathy Canfield	X				
Eric Antle	X				
Craig dePolo	X				
Clair Ketchum	ABS				

Legal/Administrative Staff		
Name	Agency	Present
Samantha Ladich – Senior Deputy Attorney General	Office of the Nevada Attorney General	X
Janell Woodward – Emergency Management	Nevada Division of Emergency Management / Homeland Security (DEM/HS)	X
Ryan Gerchman	DEM/HS	X

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

Chair Lorayn Walser, Governor’s Office of Energy, called the meeting to order at 10:00 a.m. Roll call was performed by Ryan Gerchman, 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 March 8, 2022. Solome Barton moved to approve the minutes. Andrew Trelease seconded the motion. The motion carried unanimously.

**4. DROUGHT AMENDMENT TO NV STATE HAZARD MITIGATION PLAN**

Chair Walser provided a few minutes for review of the Hazard Mitigation plan with amendment which was sent out to members in advance. Chair Walser informed the group that the Drought Amendment has been approved by FEMA, and if adopted, will be recommended to the DEM/HS chief for approval. Following this approval, the Drought Amendment will then be recommended to the Governor for approval.

Andrew Trelease, Southern NV Regional Flood, motioned to approve the adoption of the Drought Amendment. Craig de Polo, NV Bureau of Mines and Geology, seconded the motion. Motion passed unanimously.

**5. Public Comment**

Chair Walser opened the second period of public comment.

Ryan Gerchman, DEM/HS, thanked everyone for their patience regarding date changes and indicated that at the next meeting, criteria and the different applications regarding HMGP and COVID will be presented. In addition, Mr. Gerchman explained that the Hazard Mitigation Plan will need updating soon, and requested the help of all meeting members, indicating that the turnaround time is very short to complete this mitigation plan.

**6. Adjournment**

Chair Walser asked for a motion to adjourn. Andrew Trelease moved to adjourn the August 30, 2022 Nevada Hazard Mitigation Working Group meeting. Salome Barton, seconded the motion. The motion carried unanimously.

## Maxwell Basin Flood Mitigation Project Scope of Work

The Maxwell Basin Flood Mitigation Project is identified in both the Carson City Hazard Mitigation Plan and the Carson River Watershed Floodplain Management Plan. Carson City, in conjunction with the Carson Water Subconservancy District (CTP) and FEMA, also completed the North Carson Area Drainage Plan (NCADP). The NCADP identified nine specific area of mitigation interest, and further developed mitigation alternatives for four of these. The Maxwell Basin project was included in the four selected alternatives. The NCADP developed conceptual plans and cost for the Maxwell Basin. The NCADP also compiled existing and proposed hydrology and hydraulics modeling using FLO-2D. The proposed conditions modeling incorporated the Maxwell Basin to assess downstream effects and benefits. The Maxwell Basin Flood Mitigation Project will build on the NCADP to produce final plans, specifications, and engineer's opinion of probable cost. The project will also acquire all necessary environmental clearances and prepare a drainage report to support the design prior to construction. Once the basin and outfall are constructed, the project will also revegetate all disturbed ground.

Carson City Public Works staff will manage the mitigation activity and grant administration. It is anticipated that Carson City will hire a civil/environmental engineering consultant from either the City's oncall list or through a request for qualifications to complete the plans, specifications, cost estimate, environmental clearance, drainage report, and bid package. Carson City will hire a low bid contractor to complete the construction.

Per the attached North Carson Area Drainage Plan completed by Carson City, the Carson Water Subconservancy District (CTP) and FEMA in June 2020, the Maxwell Basin will provide 100-year flood protection. The basin will detain inflow from the upstream contributing areas and meter the outlet to downstream channel capacity. The conceptual design limits outflow to 100 cfs. The resulting basin discharge will likely also result in a reduction in the effective Special Flood Hazard Area for the Sugarloaf Extension flooding source.

The Maxwell Basin mitigation project will be managed by Carson City Public Works staff. It is anticipated the Robb Fellows, Chief Stormwater Engineer for Carson City Public Works will serve as Project Manager. In addition, Carson City will hire an engineering consultant and contractor to complete the project tasks described in the scope of work section.

Per the North Carson Area Drainage Plan (attached), the basin will provide 100-year flood protection. The residual risk would be storm runoff in excess of the 1% annual chance event. The basin will also provide storage for potential upstream debris flows. The conceptual design discharge from the basin is 100 cfs. This could present residual risk downstream if channel capacity is exceeded. In the current configuration channel capacity exceeds 100 cfs at all locations downstream.

A basin at this location to mitigate and meter flooding was determined to be the best alternative because of cost. The basin is located on Carson City owned property eliminating acquisition costs. The project has also identified a spoils location adjacent to the basin to reduce haul costs. Other alternatives considered include increased capacity of downstream infrastructure or land/property acquisition. Both would be either cost or politically prohibitive.

## Agenda Item #5a

Maintenance will be performed by Carson City Public Works. The basin will be inspected once a year and after every significant rainfall event. Maintenance will consist of excess vegetation and sediment removal, basin side slope grading, and ensuring the outlet pipe and channel conveyance is maintained. The cost of maintenance is estimated to be approximately \$85,178 over the life of the basin assuming a 75-year service life. This cost was included in the BCA.



# HAZARD MITIGATION GRANT PROGRAM PROJECT SUBAPPLICATION

**NOTE:** Please click within the greyed section to begin typing in each section of the application.

**DISASTER NUMBER:**

DR-4523-NV

**JURISDICTION NAME:**

Carson City Public Works

**PROJECT TITLE:**

Maxwell Detention Basin

**PROJECT NUMBER:**

PROJECT NUMBER IS THE CONTROL NUMBER RECEIVED AT TIME OF SUCCESSFUL NOI SUBMITTAL



**Subapplications are due postmarked to NV DEM by:**

**DR-4523-NV: ASAP  
Deadline: July 5, 2022**

## HAZARD MITIGATION GRANT PROGRAM (HMGP)

### INTRODUCTION

#### INTRODUCTION

As a result of the declaration of a major federal disaster or aggregate Fire Management Assistance declarations, the State of Nevada is eligible for HMGP funding. The State has established priorities to accept project subapplications from subapplicants statewide, state agencies, tribal governments, local governments, and Private Non-Profits.

Hazard mitigation activities are aimed at reducing or eliminating future damages. Activities include cost effective hazard mitigation projects and hazard mitigation plans approvable by the Federal Emergency Management Agency (FEMA).

Nevada's Enhanced State Hazard Mitigation Plan (ESHMP) accreditation resulted in additional dollars available for local agencies' hazard mitigation plan and project funding for Hazard Mitigation Grant Program (HMGP). In order to maintain ESHMP status, further information is requested by FEMA. This information is requested as a means of assessing the pro-activity of your community or agency.

#### PUBLIC ASSISTANCE

If your project is aimed at repairing a damaged facility resulting from a federally declared disaster, contact the Public Assistance (PA) Program at [disaster-recovery@dps.state.nv.us](mailto:disaster-recovery@dps.state.nv.us). HMGP does not fund repairs for damages that result after a disaster.

#### TIME EXTENSIONS

Time extensions may be requested, and will be approved or denied on a case-by-case basis. To request additional time to submit a subapplication, send an email to the [mitigation@dps.state.nv.us](mailto:mitigation@dps.state.nv.us) mailbox. The subject line must include: "Subapplication Time Extension Request (include Disaster Number and Project Control Number)". The body of the message must include justification and specific details supporting why more time is needed and how much additional time is requested.

#### QUESTIONS

Submit all HMGP subapplication questions to the following mailbox: [jwoodward@dps.state.nv.us](mailto:jwoodward@dps.state.nv.us)

## HAZARD MITIGATION GRANT PROGRAM REGULATIONS

### REGULATIONS

Federal funding is provided under the authority of the [Robert T. Stafford Emergency Assistance and Disaster Relief Act \(Stafford Act\)](#) through FEMA and the Nevada Division of Emergency Management (NV DEM). NV DEM is responsible for identifying program priorities, reviewing subapplications and forwarding recommendations for funding to FEMA. FEMA has final approval for activity eligibility and funding.

The federal regulations governing HMGP are found in Title 44 of the Code of Federal Regulations (44CFR), Part 201 (Planning) and Part 206 (Projects) and in Title 2 of the Code of Federal Regulations (2CFR), Part 200 (Uniform Administrative Requirements).

The FEMA regulations that establish the agency-specific process for implementing NEPA are set forth in 44 CFR Part 10. FEMA will lead the NEPA clearance process.

### FEMA GUIDANCE

FEMA requires that all projects adhere to the [Hazard Mitigation Assistance Unified Guidance 2015](#).

## HAZARD MITIGATION GRANT PROGRAM ELIGIBILITY CHECKLIST

Before completing the subapplication, review the following HMGP eligibility checklist to ensure project meets the requirements for HMGP funding.

- Construction/Ground Breaking:** No construction or ground breaking activities are allowed prior to FEMA approval. HMGP does not fund projects that are in progress or projects that have already been completed.
- Scope of Work:** The project scope of work (SOW) must be consistent with the SOW provided in the approved Notice of Interest (NOI).
- Benefit Cost Analysis:** FEMA Benefit Cost Analysis (BCA) Toolkit Version 6.0 must be used to conduct the BCA. FEMA will only consider subapplications that use a FEMA-approved BCA methodology. Documentation to support all BCA calculations must be included in subapplication. Projects with a benefit cost ratio (BCR) of less than 1.0 will not be considered. BCA will be verified by FEMA and NV DEM upon subapplication submittal. 5% Initiative Projects do not need a BCA. Planning grants do not need a BCA.
- Subapplicant Eligibility:** Subapplicant must be an eligible State Agency, Local Government (City, County, Special Districts), Federally Recognized Tribe or Private Nonprofit (PNP) Organization. PNP is defined as private nonprofit educational, utility, emergency, medical, or custodial care facility, facilities providing essential governmental services to the general public and such facilities on Indian reservations (see 44 CFR Sections 206.221(e) and 206.434(a)(2)).
- LHMP/MJHMP:** Subapplicant must have a FEMA approved and adopted Local or Multi Jurisdictional Hazard Mitigation Plan (LHMP or MJHMP) to be eligible for HMGP funding. If a jurisdiction has its own governing body, jurisdiction must be covered under its own plan. LHMP's/MJHMP's expire five years after FEMA approval. Failure to update plan before expiration date may cause project deobligation.
- Cost Share:** Local funding match of 25% of the total project cost is required by the subapplicant. HMGP matching funds must be from a non-federal source. State does not contribute to local funding match.
- Period of Performance:** Projects must be completed (including close-out) within the 36 month Period of Performance (POP). POP begins upon FEMA approval of the subapplication.

**HAZARD MITIGATION GRANT PROGRAM  
ELIGIBILITY CHECKLIST  
(continued)**

- Complete Subapplication:** Failure to include all required documentation will delay the processing of your subapplication and may result in denial of project. The SOW, cost estimate, cost estimate narrative, work schedule and BCA must accurately mirror each other to be considered for funding. The budget narrative must include a detailed description of every cost estimate line-item, including the methodology used to estimate each cost.
- Regulations:** Subapplications that are inconsistent with state and federal HMGP regulations, or do not meet eligibility criteria will not be considered.
- Duplication of Programs:** HMGP funding cannot be used as a substitute or replacement to fund activities or programs that are available under other federal authorities, known as Duplication of Programs (DOP).
- Time Extensions:** Unless a time extension has been approved before the deadline, subapplications must be postmarked by the applicable deadline to be considered for funding.



**SUBAPPLICANT MUST BE ABLE TO CHECK EVERY BOX TO QUALIFY FOR HMGP FUNDING.**

## SUBAPPLICATION FORMAT INSTRUCTIONS

NV DEM requires the following format to be used for all HMGP subapplications.

### COMPLETE SUBAPPLICATION PACKAGE CONSISTS OF THE FOLLOWING:

**Electronic Version of the completed application**

- Table of Contents
- All electronic attachments must be clearly titled

**Send electronic version to NV DEM either by Thumb Drive or by DropBox or Microsoft Word 365 Zip function.**

- Attachments must be in one of the following formats: Microsoft Word Version 2007 (or newer), Microsoft Excel or Adobe PDF
- Benefit Cost Analysis (BCA) 6.0 must be included
- All electronic attachments must be clearly titled

### ORGANIZATION OF THE BINDER SECTIONS MUST BE TABBED IN THE FOLLOWING FORMAT:

0. Table of Contents
1. Subapplication
2. Scope of Work
3. Designs
4. Studies
5. Maps
6. Photos
7. Schedule (Additional documentation work schedule components, Gantt chart, etc.)
8. Budget ([HMGP Cost Estimate Spreadsheet](#) and cost estimate narrative)
9. Match ([Local Match Commitment Letter Template](#))
10. BCA Report ([BCA Version 6.0](#) report and BCA supporting documentation)
11. Maintenance ([Project Maintenance Letter Template](#))
12. Environmental ([FEMA's Site Information, Environmental Review and Checklist](#) and all other environmental documentation)
13. Supporting Docs (Any extra supporting documentation)

### MAIL OR DELIVER COMPLETED SUBAPPLICATIONS TO:

Nevada Division of Emergency Management  
Attention: Hazard Mitigation  
2478 Fairview Dr.  
Carson City, NV 89701

## PROJECT SUBAPPLICATION FORM

### SUBAPPLICANT INFORMATION

1. **SUBAPPLICANT:**   
NAME OF STATE AGENCY, TRIBAL GOVERNMENT, LOCAL GOVERNMENT, PRIVATE NON-PROFIT OR SPECIAL DISTRICT APPLYING FOR FUNDING

2. **TYPE:**                    STATE/LOCAL GOVERNMENT   TRIBAL GOVERNMENT   PRIVATE NON-PROFIT   SPECIAL DISTRICT  
                                                                                             

3. **FIPS #:**                      IF YOU DO NOT KNOW YOUR FEDERAL IDENTIFICATION PROCESSING SYSTEM NUMBER (FIPS #), REQUEST BY EMAILING [mitigation@dps.state.nv.us](mailto:mitigation@dps.state.nv.us)

4. **DUNS #:**                      IF YOU DO NOT KNOW YOUR DATA UNIVERSAL NUMBERING SYSTEM (DUNS) #, CALL DUN & BRADSTREET (D&B) @ 1-866-705-5711 FOR INFORMATION

5. **COUNTY:**                      THE NAME OF THE COUNTY WHERE THE PROPOSED PROJECT IS LOCATED

6. **POLITICAL DISTRICT NUMBERS:**                   CONGRESSIONAL:     
   STATE ASSEMBLY:     
   STATE LEGISLATIVE:      PROVIDE ONLY THE NUMBERS OF THE POLITICAL DISTRICTS FOR THE SUBAPPLICANT

7. **PRIMARY CONTACT:**                   POINT OF CONTACT FOR YOUR PROJECT. NEVADA DEM WILL CONTACT THIS PERSON FOR QUESTIONS AND/OR REQUESTS FOR INFORMATION

**NAME:**                    Mr.    Ms.   **FIRST:**    **LAST:**   
**TITLE:**                     
**ORGANIZATION:**         
**ADDRESS:**                 
**CITY:**                      **STATE:**    **ZIP CODE:**   
**TELEPHONE:**              **FAX:**   
**EMAIL:**                   

8. **ALTERNATIVE CONTACT:**                   BACK-UP POINT OF CONTACT FOR YOUR PROJECT. NEVADA DEM WILL CONTACT THIS PERSON IF PRIMARY CONTACT IS UNAVAILABLE

**NAME:**                    Mr.    Ms.   **FIRST:**    **LAST:**   
**TITLE:**                     
**ORGANIZATION:**         
**ADDRESS:**                 
**CITY:**                      **STATE:**    **ZIP CODE:**   
**TELEPHONE:**              **FAX:**   
**EMAIL:**

**LOCAL HAZARD MITIGATION PLAN INFORMATION**

**9. LOCAL HAZARD MITIGATION PLAN (LHMP) REQUIREMENT:**

- A FEMA approved and locally adopted LHMP is required to receive federal funding for all project subapplication activities. Subapplicants for HMGP funding must have a FEMA-approved Mitigation Plan in place at the time of sub-award. Subapplication will be reviewed to ensure that the proposed activity is in conformance with subapplicant’s plan.

For State agencies, please use the currently approved Enhanced State Hazard Mitigation Plan.

**A. NAME/TITLE OF YOUR LHMP:** Carson City Hazard Mitigation Plan July 14, 2021

<p><b>B. LOCAL SINGLE JURISDICTIONAL MULTHAZARD MITIGATION PLAN:</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">DATE SUBMITTED TO NV DEM:</td> <td style="border: 1px solid black; padding: 2px;">7/1/2021</td> </tr> <tr> <td>DATE APPROVED BY FEMA:</td> <td style="border: 1px solid black; padding: 2px;">8/18/2021</td> </tr> <tr> <td>DATE ADOPTED BY LOCAL AGENCY:</td> <td style="border: 1px solid black; padding: 2px;">9/16/2021</td> </tr> </table>	DATE SUBMITTED TO NV DEM:	7/1/2021	DATE APPROVED BY FEMA:	8/18/2021	DATE ADOPTED BY LOCAL AGENCY:	9/16/2021	<b>OR</b>	<p><b>LOCAL MULTI JURISDICTIONAL MULTHAZARD MITIGATION PLAN:</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">DATE SUBMITTED TO NV DEM:</td> <td style="border: 1px solid black; height: 20px;"></td> </tr> <tr> <td>DATE APPROVED BY FEMA:</td> <td style="border: 1px solid black; height: 20px;"></td> </tr> <tr> <td>DATE ADOPTED BY LOCAL AGENCY:</td> <td style="border: 1px solid black; height: 20px;"></td> </tr> <tr> <td>LEAD AGENCY:</td> <td style="border: 1px solid black; height: 20px;"></td> </tr> </table>	DATE SUBMITTED TO NV DEM:		DATE APPROVED BY FEMA:		DATE ADOPTED BY LOCAL AGENCY:		LEAD AGENCY:	
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DATE ADOPTED BY LOCAL AGENCY:																
LEAD AGENCY:																

**C. IF YOUR PROJECT IS REFERENCED IN YOUR LHMP, INDICATE WHERE THE PROPOSED PROJECT CAN BE FOUND; USE N/A FOR NOT APPLICABLE BOXES:**

CHAPTER	PART	SECTION	PAGE
N/A	N/A	8	8-19



**DO NOT INCLUDE A COPY OF YOUR PLAN WITH SUBAPPLICATION.**

**D. PROVIDE A SHORT NARRATIVE DETAILING HOW YOUR PROJECT ALIGNS WITH THE RISK AND HAZARD ASSESSMENTS, STRATEGIES, GOALS AND/OR OBJECTIVES OF YOUR PLAN:**

Goal 5.J-e Install a storm water retention / detention facility in Goni Canyon Watershed and storm drain system at Goni Creek.

**COMMUNITY INFORMATION**

**10. COMMUNITY PARTICIPATION:**

**A. CHECK BOX(ES) IF YOUR COMMUNITY PARTICIPATES IN ANY OF THE FACTORS BELOW:**

Select a column appropriate to your type of project. Acronyms include: Community Wildfire Protection Plan (CWPP), Community Rating System (CRS) Plan and Unreinforced Masonry (URM) Participation.

<table style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #cccccc;"> <th style="text-align: center; padding: 2px;">FIRE</th> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/> CWPP, FIRE WIRE, FIRE SAFE</td> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/> CURRENT CEQA ACTIVITY</td> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/> DEFENSIBLE SPACE</td> </tr> </table>	FIRE	<input type="checkbox"/> CWPP, FIRE WIRE, FIRE SAFE	<input type="checkbox"/> CURRENT CEQA ACTIVITY	<input type="checkbox"/> DEFENSIBLE SPACE	<table style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #cccccc;"> <th style="text-align: center; padding: 2px;">FLOOD</th> </tr> <tr> <td style="padding: 2px;"><input checked="" type="checkbox"/> CRS PLAN</td> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/> CURRENT CEQA ACTIVITY</td> </tr> <tr> <td style="padding: 2px;"><input checked="" type="checkbox"/> HYDROLOGY STUDY</td> </tr> </table>	FLOOD	<input checked="" type="checkbox"/> CRS PLAN	<input type="checkbox"/> CURRENT CEQA ACTIVITY	<input checked="" type="checkbox"/> HYDROLOGY STUDY	<table style="width: 100%; border-collapse: collapse;"> <tr style="background-color: #cccccc;"> <th style="text-align: center; padding: 2px;">EARTHQUAKE</th> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/> SHAKEOUT DRILL PARTICIPATION</td> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/> URM PARTICIPATION</td> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/></td> </tr> </table>	EARTHQUAKE	<input type="checkbox"/> SHAKEOUT DRILL PARTICIPATION	<input type="checkbox"/> URM PARTICIPATION	<input type="checkbox"/>
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<input type="checkbox"/> SHAKEOUT DRILL PARTICIPATION														
<input type="checkbox"/> URM PARTICIPATION														
<input type="checkbox"/>														

**B. PROVIDE A NARRATIVE DESCRIPTION OF ALL OF FACTORS SELECTED FROM LIST ABOVE:**



**C. IS YOUR JURISDICTION REQUIRED TO PROVIDE PUBLIC NOTICE OF THIS PROJECT?**

Yes  No If yes, provide details:

Public notifications and meeting will be conducted prior to construction.

**PROJECT INFORMATION**

**11. PROJECT TITLE:** Maxwell Detention Basin

MUST USE THE SAME PROJECT TITLE ORIGINALLY USED IN THE APPROVED NOTICE OF INTEREST (NOI). IF YOU NEED TO CHANGE YOUR PROJECT TITLE, CONTACT NV DEM at [mitigation@dps.state.nv.us](mailto:mitigation@dps.state.nv.us)

**12. PROJECT LOCATION:**

**A. IDENTIFY THE COUNTY/COUNTIES WHERE THE ACTIVITY WILL OCCUR:**

Carson City – Independent City

**B. LATITUDE/LONGITUDE COORDINATES:**

FEMA requires that all projects be geo-coded using latitude and longitude (lat/long) using NAD-83 or WGS-84 datum. The lat/long coordinates must be expressed in degrees including five or more decimal places (e.g., latitude 36.999221, longitude -109.044883).

LATITUDE
39.21186 N

LONGITUDE
-119.74630 W



**IF THERE ARE MORE THAN ONE SET OF LAT/LONG COORDINATES, PROVIDE ON SEPARATE DOCUMENT AND ADD TO MAP SECTION OF BINDER.**

**C. STRUCTURE COORDINATES:**

- For projects that protect buildings or other facilities, provide coordinates for each structure at either the front door of the structure or the intersection of the public road and driveway that is used to access the property.
- For large activity areas, such as detention basins or vegetation management projects, the location must be described by three or more coordinates that identify the boundaries of the project.
- The polygon created by connecting the coordinates must encompass the entire project area.

39.214462, -119.748448; 39.214622, -119.742900; 39.211218, -119.749301; 39.211242, -119.742791

**D. STAGING AREA:**

Describe the project staging area. This is the area where the project equipment, materials and/or debris will be staged. Include a vicinity map with the proposed staging area(s) in the map section of the binder.

The project staging area will be located on City owned property off Goni Road. The specific location is shown on the preliminary plans (15%) included in the Plans Section (xBM-291285001-MaxwellBasin Maxwell Basin-environmental.pdf)



**AERIAL MAP(S) OF STAGING AREA(S) MUST BE INCLUDED IN SUBAPPLICATION.**

**E. SITE PHOTOS:**

**Agenda Item #5a**

- A minimum of three ground photos per project site are required. Include in photo section of the binder.

**F. MAPPING REQUIREMENTS:**

Provide the following mapping elements in the map section of the binder:

- If project area has been mapped using GIS software, include the completed Shapefiles in electronic versions of full application.
- Include a vicinity map of the general area showing major roads. Aerial photographs may be used as vicinity maps.
- Prominently mark the project location on the vicinity map.
- Provide a detailed project map that clearly identifies the project boundaries.
- Project map must show all lat/long coordinates provided in the project description.
- Vicinity map and the project map must both have a north arrow and scale.

***i* SEND ONLY ELECTRONIC VERSIONS OF MAPS.**

**G. PUBLIC ASSISTANCE (PA) PROGRAM FUNDING:**

List any Public Assistance Disaster Survey Reports (DSR) or Project Worksheets (PWs) that were completed at the project location from previous disasters. List all current engagement with PA for this current disaster and include date(s) if known:

N/A
-----

**H. DEED RESTRICTIONS THAT LIMIT FEDERAL FUNDING:**

Is there a deed restriction or permanent conservation easement on the property at the project site that would prohibit federal disaster funding (e.g., a previously FEMA funded acquisition of a structure on this property)? If yes, describe in detail.

No
----

**13. PROJECT DESCRIPTION:**

**A. APPLICATION TYPE:**

- Project    5% Activity

*5% activities are defined as mitigation actions that are consistent with your local hazard mitigation plan and meet all HMGP requirements, but may be difficult to conduct a standard BCA to prove cost-effectiveness. Examples: early earthquake warning system, back-up generators for critical facilities, public awareness campaign, mitigation specific community outreach activities.*

**B. PROJECT TYPE:**

Select at least one project type; select as many as needed to accurately describe project.

<input type="checkbox"/> EARTHQUAKE	<input type="checkbox"/> FIRE	<input type="checkbox"/> FLOOD	<input type="checkbox"/> OTHER
<input type="checkbox"/> CODE ENFORCEMENT	<input type="checkbox"/> DEFENSIBLE SPACE	<input type="checkbox"/> ACQUISITION	<input type="checkbox"/> CRITICAL FACILITY GENERATOR(S)
<input type="checkbox"/> NON-STRUCTURAL	<input type="checkbox"/> FIRE RESISTANT BUILDING MATERIALS	<input type="checkbox"/> DRY FLOOD PROOFING	<input type="checkbox"/> DROUGHT <input type="checkbox"/> TSUNAMI
<input type="checkbox"/> STRUCTURAL	<input type="checkbox"/> FIRE VEGETATION MANAGEMENT	<input checked="" type="checkbox"/> FLOOD CONTROL	<input type="checkbox"/> WIND
<input type="checkbox"/> NON-STRUCTURAL & STRUCTURAL	<input type="checkbox"/> SOIL STABILIZATION	<input type="checkbox"/> ELEVATION	<input type="checkbox"/> OTHER: <table border="1" style="display: inline-table; width: 150px; height: 20px; vertical-align: middle;"></table>

## Agenda Item #5a

[CLIMATE RESILIENCY MITIGATION ACTION \(CRMA\)](#): Projects that mitigate risk through restoration of the natural environment

**C. DESCRIBE PROBLEM/HAZARDS/RISKS:**

Describe the problem this project is attempting to solve and the expected outcome. Describe the hazards and risks to life, safety and any improvements to property in the project area for at least the last 25 years. Describe in detail how the project reduces hazard effects and risks.

The Maxwell Basin will provide flood mitigation for approximately 30 downstream residential and commercial structures. The basin is part of broader flood hazard mitigation plan detailed for the Goni Canyon Watershed as part of the 2021 Carson City Hazard Mitigation Plan. The area has experience significant flooding, most recently in 2017, 2005, and 1997.

**D. DESCRIBE RECENT EVENTS THAT INFLUENCED THE SELECTION OF THIS PROJECT:**

Describe recent events (e.g. changes in the watershed, discovery of a new hazard, zoning requirements, inter-agency agreements, etc.) that influenced the selection of this project.

Carson City recently completed the North Carson Area Drainage Plan as part of a FEMA CTP grant through the Carson Water Subconservancy District. The plan evaluated flood mitigation alternatives in the north Carson City area including cost/benefit analysis per FEMA guidelines. The Maxwell Basin project achieved a high cost/benefit ratio and is identified in the Carson City Hazard Mitigation Plan.

**E. SCOPE OF WORK (SOW):**

**STATE EXACT SOW DOCUMENT TITLE:**

Maxwell Basin Flood Mitigation Project Scope of Work

1. Describe the entire SOW of the project in clear, concise, ample detail.
2. Must provide a thorough description of **all tasks and activities** to be undertaken.
3. Must be written in sequential order from start to finish of the project.
4. Describe any land acquisition activities, and/or right-of-way or access easements that need to be obtained.
5. If structural, discuss how the structure/building/facility will be constructed or retrofitted.
6. Include building or structure dimensions, material types, depth and width of excavations, volume of materials excavated, type of equipment to be used, staging and parking areas, and any phasing of the project.
7. If any tunneling is proposed, describe the method and any temporary trenches or pits.
8. Describe any demolition activities that need to occur prior to construction or retrofitting.



**INSERT THIS DOCUMENT IN THE SOW ORDER OF YOUR ELECTRONIC DOCUMENTS.**

**F. HAS YOUR JURISDICTION PREVIOUSLY RECEIVED HMGP FUNDING?**

Yes  No  Unknown | If yes, provide disaster number(s):

**G. HAS YOUR JURISDICTION RECEIVED ANY OTHER FUNDING?**

Describe all other funding received for this project and all other recent projects. Identify the funding source (i.e., Federal, State, Private, etc.).

None

**H. RELATED PROJECTS:**

Describe any other projects or project components (whether or not funded by FEMA), which may be related to the proposed project, or are in (or near) the proposed project

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area. FEMA must look at all projects to determine a cumulative effect. FEMA reviews all interrelated projects under NEPA regulations.

### I. HAZARD ANALYSIS TYPE:

Select the hazard(s) below that this project will protect against. Select as many as needed.

- |  |   |   |  |
|--|---|---|--|
| <input type="checkbox"/> BIOLOGICAL      | <input type="checkbox"/> EARTHQUAKE       | <input type="checkbox"/> LAND SUBSISTENCE | <input type="checkbox"/> TERRORIST               |
| <input type="checkbox"/> CHEMICAL        | <input type="checkbox"/> FIRE             | <input type="checkbox"/> MUD/LANDSLIDE    | <input type="checkbox"/> TORNADO                 |
| <input type="checkbox"/> CIVIL UNREST    | <input type="checkbox"/> FISHING LOSSES   | <input type="checkbox"/> NUCLEAR          | <input type="checkbox"/> TOXIC SUBSTANCES        |
| <input type="checkbox"/> COASTAL STORM   | <input checked="" type="checkbox"/> FLOOD | <input type="checkbox"/> SEVERE ICE STORM | <input type="checkbox"/> TSUNAMI                 |
| <input type="checkbox"/> CROP LOSSES     | <input type="checkbox"/> FREEZING         | <input type="checkbox"/> SEVERE STORM(S)  | <input type="checkbox"/> WINDSTORM               |
| <input type="checkbox"/> DAM/LEVEE BREAK | <input type="checkbox"/> HUMAN CAUSE      | <input type="checkbox"/> SNOW             | <input type="checkbox"/> OTHER (describe below): |
| <input type="checkbox"/> DROUGHT         | <input type="checkbox"/> HURRICANE        | <input type="checkbox"/> SPECIAL EVENTS   |  |

### J. DESIGN PLANS:

If your project requires design plans, plans should be prepared to supplement the SOW. If the project involves ground disturbance, (e.g. enlarging ditches or culverts, diversion ditches, detention basins, storm water improvements, etc.) include the following:

- Scale:** Plans should be drawn to scale (e.g. 1" to 100' or 1" to 200') depicting the entire land parcel, showing buildings, improvements, underground utilities, other physical features, dimensions and cross sections.
  - Identification:** Indicate agency name, land owner, civil engineer, soil engineer, geologist, map preparer, and date of map preparation. Also, indicate the name of the project.
  - Legend/Orientation:** Include a legend explaining all lines and symbols. Identify property acreage and indicate direction with a north arrow (pointing to top or right hand side of the plan).
  - Dimensions:** Show property lines and dimensions. Also, show boundary lines of project and their dimensions if only a portion of the property is being utilized for the project.
  - Structures:** Identify all existing and proposed buildings and structures including storm drains, driveways, sidewalks and paved areas.
  - Utilities:** Indicate names and location of utilities on property (water, sewage, gas, electric, telephone, cable).
  - Roads/Easements:** Indicate location, names, and centerline of streets and recorded roads. Identify any utility, drainage or right-of-way easements on the property.
  - Drainage:** Show the location, width and direction of flow of all drainage courses on site.
  - Grading/Topographic Information:** Show existing surface contours on-site and bordering the property
  - Parking:** Show all construction parking and staging areas and provide dimensions.
  - Cross Sections:** Provide cross sections of proposed buildings, structures or other improvements, and any trenches, temporary pits or catchment basins.
- If applicable, provide studies and engineering documentation, including any Hydrology and Hydraulics (H&H) data.
- If applicable, provide drawings or blueprints that show the footprint and elevations.



**PLEASE SEND ELECTRONIC VERSIONS OF DESIGN PLANS, DRAWINGS OR BLUEPRINTS.**

### K. PROJECT ALTERNATIVES:

Identify three project alternatives:

#### 1. ALTERNATIVE #1 – NO ACTION:

Describe the No Action alternative below. The No Action alternative evaluates the consequences of taking no action and leaving conditions as they currently exist.

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The no action option allowing potential flooding to occur and 30 structures to be at risk of damage. Damage is estimated at 5 million dollars.

### 2. **ALTERNATIVE #2 – PROPOSED ACTION:**

Describe the Proposed Action alternative below. The Proposed Action alternative is the proposed project to solve the problem. Explain why the proposed action is the preferred alternative. Identify how the preferred alternative will solve the problem, why the preferred alternative is the best solution for the community, why and how the alternative is environmentally preferred and why the project is the economically preferred alternative.

A basin at this location to mitigate and meter flooding was determined to be the preferred alternative because of cost and environmental impacts. The Maxwell Basin will intercept flood flows and meter out per existing downstream capacity (<100 cfs). The basin is located on Carson City owned property eliminating acquisition costs. The project has also identified a spoils location adjacent to the basin to reduce haul costs. All disturbed areas will be returned to existing conditions through landscape treatments to mitigate environmental impacts.

### 3. **ALTERNATIVE #3 – SECOND ACTION ALTERNATIVE:**

Describe the Second Action alternative below. The Second Action alternative described must also solve the described problem. State why this alternative wasn't chosen. It must be a viable project that could be substituted in the event the proposed action is not chosen.

The Second Action alternative considered was increased capacity of downstream infrastructure and land/property acquisition. This alternative would be cost and politically prohibitive.

<b>WORK SCHEDULE INFORMATION</b>
----------------------------------

**14. PROJECT WORK SCHEDULE:**

The intent of the work schedule is to provide a realistic appraisal of the time and components required to complete the project.

- Describe each of the major work elements and milestones in the description section below.
- Project subapplication examples are: construction, architectural, design, engineering, inspection, testing, permits, project management, mobilization and de-mobilization.
- State the total timeframe anticipated for each of the work elements.
- State the total timeframe anticipated to complete the project.
- Work schedule must mirror SOW, budget and BCA.OPTIONAL: Provide the work schedule in GANTT chart form as supplemental documentation in the work schedule section of the binder Include this information as an example.

WORK SCHEDULE EXAMPLE		
#	DESCRIPTION	TIMEFRAME
1.	Kick-off, 90% design meetings	3 months
2.	Final contract drawing development	5 months
3.	Open bids and award contract	4 months
4.	Construction – Mobilization	5 months
5.	Construction – Demolition	4 months
6.	Construction – Concrete and conduit work	2 months
7.	Construction – Trenching	2 weeks
8.	Construction – Utility relocation	4 months
9.	Construction – Electrical Installation	1 month
10.	Construction – Site Restoration	1 week
11.	Construction – Complete punch list	2 months
12.	Construction – Demobilization	1 week
13.	Project Close-out and record drawings	2 months
14.	Grant Close out	3 months
<b>TOTAL MONTHS:</b>		<b>36 months</b>



**TOTAL PROJECT DURATION (INCLUDING CLOSE-OUT) MUST NOT EXCEED A 36 MONTH PERIOD OF PERFORMANCE (POP).**

#	DESCRIPTION	TIMEFRAME
1.	See Maxwell Schedule.xlsx	
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.	<b>STANDARD VALUE (DO NOT CHANGE)</b> Grant Close-out	3 months
<b>TOTAL MONTHS:</b>		<b>36</b>

If more lines are needed than provided, indicate the title of document in box 1 and attach a separate work schedule in the schedule section of binder.

**COST ESTIMATE INFORMATION**

**15. HMGP COST ESTIMATE SPREADSHEET:**

**A. COST ESTIMATE INSTRUCTIONS:**

Using the [HMGP Cost Estimate Spreadsheet](#), provide a detailed cost estimate breakdown.

- Cost estimate describes the anticipated costs associated with the SOW for the proposed mitigation activity. Cost estimates must include detailed estimates of cost item categories.
- Only include costs that are directly related to performing the mitigation activity. If additional work, such as remodeling, additions, or improvements are being done concurrently with the mitigation work, do not include these costs in the submitted budget.
- Documentation that supports the budget must be attached to the subapplication in the budget section of the binder.
- Total costs must be consistent with the requested federal share plus the matching funds and must be consistent with the project cost in the Benefit Cost Analysis (BCA), SOW and work schedule.

HMGP COST ESTIMATE SPREADSHEET EXAMPLE					
#	ITEM NAME	Unit Qty	UNIT	UNIT COST	COST EST TOTAL
1.	Pre-Award Costs: Develop BCA	4	HR	\$150	\$600
2.	Temp. Inlet Filter Rolls	4	EA	\$250	\$1000
3.	Temp. Fiber Roll	1850	LF	\$3	\$5550
4.	Hydraulic Mulch	1000	SQYD	\$2	\$2000
5.	Plane Asphalt Concrete Pavement	650	SQYD	\$22	\$14300
6.	Street Sweeping for 30 days	30	EA	\$350	\$10500
7.	Roadway Excavation	70	CY	\$40	\$2800
8.	Aggregate Base, Class 2	210	CY	\$75	\$15750
9.	Remove Concrete Pavement	650	SQYD	\$340	\$10540
10.	Asphalt Concrete, Type B	180	TON	\$150	\$27000
11.	Asphalt Concrete, Leveling	10	TON	\$300	\$3000
12.	Asphalt Concrete Dike, Type A	235	LF	\$15	\$3525
13.	Asphalt Concrete Dike, Type F	125	LF	\$8	\$120
14.	Place Asphalt Concrete	15	SQFT	\$8	\$120
15.	18" Corrugated Steel Pipe Riser	5	LF	\$125	\$625
16.	24" Reinforced Concrete Pipe	275	LF	\$170	\$46750
17.	84" Reinforced Concrete Pipe Install	572	LF	\$400	\$228800
18.	Precast Triple Concrete Box Culvert	44	LF	\$1500	\$66000
19.	Curb Inlet - Type B-1 (L=9')	1	EA	\$6000	\$6000
20.	Curb Inlet - Type B-1 (L=13')	1	EA	\$6300	\$6300
21.	Curb Inlet - Type B-1 (L=15')	1	EA	\$6800	\$6800
22.	Storm Drain Cleanout - Type A-8	3	EA	\$7500	\$22500
23.	8" PVC Sewer	89	LF	\$100	\$8900
24.	Cellular Block (Precast)	4100	SQFT	\$20	\$82000
25.	Project Identification Sign	2	EA	\$1000	\$2000
<b>Total Project Cost Estimate:</b>					<b>\$573480</b>

**B. INELIGIBLE COSTS:**

The following are ineligible line items:

- Lump Sums
- Contingency Costs
- Miscellaneous Costs
- "Other" Costs
- Indirect Charges
- Overhead Costs
- Cents (must use whole dollar amounts, round unit prices up to whole dollars)

**C. PRE-AWARD COSTS:**

Eligible pre-award costs are costs incurred after the disaster date of declaration, but prior to grant award. Pre-award costs directly related to developing the application may be funded.

- Developing a BCA
- Preparing design specifications
- Submission of subapplication
- Gathering environmental and historic data
- Workshops or meetings related to development



**Subapplicants who are not awarded funds will not receive reimbursement for pre-award costs.**

**D. COST ESTIMATE NARRATIVE:**

FEMA requires a cost estimate narrative that explains all projected expenditures in detail. The cost estimate narrative is intended to mirror the cost estimate spreadsheet and should include a full detailed narrative to support the cost estimates listed in the HMGP Project Cost Estimate Spreadsheet. If your cost estimate includes City, County, or State employees' time (your agency), include personnel titles and salary/hourly wages plus benefits for a total hourly cost. Detailed timesheets must be retained.

Title the document "Cost Estimate Narrative" and include in the budget section of the binder.

**16. FEDERAL/NON-FEDERAL SHARE INFORMATION:**

**A. FUNDING RESTRICTIONS:**

HMGP funding is restricted to a maximum of \$5 million federal share for each project subapplication. FEMA will contribute up to 75 percent of the total project cost. A minimum of 25 percent of the total eligible costs must be provided from a non-federal source. State does not contribute to local cost share.

**For example:** for a \$6,250,000 total project cost, the federal requested share (75 percent) would be \$5,000,000. The non-federal match share (25 percent) provided would be \$1,250,000.

A jurisdiction may contribute an amount greater than the 25 percent non-federal share.

**For example:** for a \$10,000,000 total project cost, the federal requested share cannot exceed \$5,000,000. Therefore, the non-federal match provided must be \$5,000,000, which exceeds 25 percent of the total cost share. The sum of the non-federal and federal shares must equal the total project cost.

**B. TOTAL PROJECT COST ESTIMATE:**

\$2,050,764.71
----------------

Enter total cost formulated on [HMGP Cost Estimate Spreadsheet](#)

ENTER \$ IN BOX ABOVE



**VERIFY ALL AMOUNTS ENTERED ARE ACCURATE. INCORRECT AMOUNTS WILL DELAY PROCESSING OF YOUR SUBAPPLICATION.**

<b>FEDERAL SHARE (90% MAXIMUM)</b>	REQUESTED AMOUNT:	\$1,845,688.24
		ENTER \$ IN BOX ABOVE
	PERCENTAGE AMOUNT:	90
		ENTER % IN BOX ABOVE
<b>NON-FEDERAL SHARE (10% MINIMUM)</b>	REQUESTED AMOUNT:	\$205,076.47
		ENTER \$ IN BOX ABOVE
	PERCENTAGE AMOUNT:	10
		ENTER % IN BOX ABOVE

**C. NON-FEDERAL MATCH SOURCE: MATCH COMMITMENT LETTER:**

Use the [Local Match Commitment Letter Template](#) to complete this section and add completed letter to the match section of the binder.

- A signed Match Commitment Letter must be provided on agency letterhead.
- The non-federal source of matching funds must be identified by name and type.
- If "other" is selected for funding type, provide a description.
- Provide the date of availability for all matching funds.
- Provide the date of the Funding Match Commitment Letter.
- The funds must be available at the time of submission unless prior approval has been received from NV DEM.
- If there is more than one non-federal funding source, provide the same information for each source on an attached document.
- Match funds must be in support of cost items listed in the cost estimate spreadsheet.
- Requirements for donated contributions can be found in 2 CFR 200.306.



**BENEFIT/COST EFFECTIVENESS INFORMATION**


**17. BENEFIT/COST EFFECTIVENESS INFORMATION**

**A. BCA INSTRUCTIONS:**

FEMA will only consider subapplications from subapplicants that use a FEMA-approved methodology to conduct the Benefit Cost Analysis (BCA). BCA must be legible, complete and well-documented.

- Project BCAs must demonstrate cost-effectiveness through a Benefit Cost Ratio (BCR) of 1.0 or greater.
- Projects with a BCR of less than 1.0 will not be considered for funding.
- Total project cost must be used in the BCA.
- Maintenance of a completed HMGP project is not an eligible reimbursement activity, but must be included in the BCA.

BCA Version 6.0 is the only software that is allowed for conducting a BCA. Some project types may qualify for pre-calculated benefits. Additional information on the BCA Toolkit is available at: <https://www.fema.gov/benefit-cost-analysis>.

 The FEMA BCA Technical Assistance Helpline is available to provide assistance with FEMA’s BCA software by calling 1-855-540-6744 or via email at [BCHelpLine@FEMA.dhs.gov](mailto:BCHelpLine@FEMA.dhs.gov). The FEMA helpline is only to be utilized for technical assistance questions. The FEMA helpline will not verify the accuracy of your BCA.

**B. BCA INFORMATION:**

Once the BCA is completed, enter information requested below.

- |  |             |
|--|-------------|
| <b>1. NET PRESENT VALUE OF PROJECT BENEFITS:</b> | \$4,780,862 |
| <b>2. TOTAL PROJECT COST ESTIMATE:</b>           | \$2,067,123 |
| <b>3. BENEFIT COST RATIO:</b>                    | 2.31        |

**C. ANALYSIS TYPE:**

- |  |                                   |   |                                     |
|--|-----------------------------------|---|-------------------------------------|
| <input checked="" type="checkbox"/> FLOOD                  | <input type="checkbox"/> WILDFIRE | <input type="checkbox"/> EXEMPT (5% PROJECTS) | <input type="checkbox"/> EARTHQUAKE |
| <input type="checkbox"/> HURRICANE WIND                    | <input type="checkbox"/> DROUGHT  | <input type="checkbox"/> PRE-CALCULATED       | <input type="checkbox"/> LANDSLIDE  |
| <input type="checkbox"/> DAMAGE FREQUENCY ASSESSMENT (DFA) |                                   |   |                                     |

**D. ANALYSIS DATE (date BCA was conducted):** 04-22-22

**E. PROVIDE BCA ELECTRONIC COPIES IN FORMAT DESCRIBED BELOW:**

- Provide An electronic copy of the report in the BCA section of the binder and all backup documentation for information used in the BCA.

**MAINTENANCE ASSURANCE INFORMATION**

**18. PROJECT MAINTENANCE INFORMATION:**

**A. MAINTENANCE ASSURANCE LETTER:**

- Using the [Project Maintenance Letter Template](#), identify all maintenance activities required to preserve the long-term mitigation effectiveness of the project.
  - Examples of maintenance include: inspection of the project, cleaning and grubbing, trash removal, replacement of worn out parts, etc.
  - Attach a maintenance schedule, estimated annual costs, and a signed maintenance commitment letter for the useful life of the project.

**NATIONAL FLOOD INSURANCE PROGRAM (NFIP)**

**19. NFIP INFORMATION:**

***i* CONTACT YOUR COUNTY OR LOCAL FLOODPLAIN ADMINISTRATOR FOR NFIP INFORMATION.**

**A. NFIP PARTICIPATION:**

- 1. Is the jurisdiction where the project is located participating in the NFIP? YES  NO 
  - a. If yes, are they in good standing? YES  NO
  - b. If no, explain:

**B. PROJECT LOCATION:**

- 1. Is this project located in a floodplain or floodway designated on a FEMA Flood Insurance Rate Map (FIRM)? YES  NO 
  - a. Mark the project location on the FIRM and attach to subapplication in the maps section of the binder.
- 2. Provide the following information for the location of the project:
  - a. FIRM panel number:
  - b. FIRM zone designations:
  - c. NFIP community ID number:

- C. LAST [COMMUNITY ASSISTANCE VISIT \(CAV\)](#) DATE:

**ENVIRONMENTAL INFORMATION**

**20. ENVIRONMENTAL INFORMATION:**

**A. FEMA ENVIRONMENTAL CHECKLIST:**

- Complete the [FEMA Site Information, Environmental Review, and Checklist](#) and attach to the environmental section of the binder. Provide a detailed response to each question. Attach supporting documentation in compliance with [FEMA's frontloading requirements](#).

## PRINT THIS PAGE – ORIGINAL SIGNATURE IS REQUIRED

### PROJECT CONDITIONS

Indicate by checking each box below that you will adhere to these listed project conditions.

- If during implementation of the project, ground-disturbing activities occur and artifacts or human remains are uncovered, all work will cease and FEMA, NV DEM, and the State Historic Preservation Officer (SHPO) will be notified.
- If deviations from the approved scope of work result in design changes, the need for additional ground disturbance, additional removal of vegetation, or will result in any other unanticipated changes to the physical environment, FEMA will be contacted and a re-evaluation under NEPA and other applicable environmental laws will be conducted.
- If wetlands or waters of the U.S. are encountered during implementation of the project, not previously identified during project review, all work will cease and FEMA will be notified.
- Due to the Federally mandated Environmental and Historic Preservation (EHP) review; no construction will occur for this project prior to FEMA and NV DEM approval.

### AUTHORIZATION

The undersigned does hereby submit this subapplication for financial assistance in accordance with the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program (HMGP) and the State Hazard Mitigation Administrative Plan and certifies that the subapplicant (e.g., organization, city, or county) will fulfill all requirements of the program as contained in the program guidelines and that all information contained herein is true and correct to the best of our knowledge.

Subapplicant Authorized Agent

**NAME:** Robert D. Fellows

**TITLE:** Chief Stormwater Engineer

**ORGANIZATION:** Carson City Public Works

**SIGNATURE:** \_\_\_\_\_

**DATE:** 5/2/2022

## Maxwell Basin Flood Mitigation Project

### Budget Narrative

**Task:** Pre-Award HMGP Application Preparation Cost

**Description:** Cost associated with preparation of the Mitigation Project HMGP application for this project

**Cost:** Carson City Public Works hired a contractor to assist with the application the total fee was \$20,000

**Task:** Management

**Description:** Cost associated with management of the HMGP grant at 5% of the project cost (not including pre-award costs)

**Cost:** \$96,700

**Task:** Project Management

**Description:** This task captures the cost of managing the design project from the engineering consultant.

**Cost:**

Cost Estimate			
Labor Classifications	Rate	Hours	Cost
Project Manager	\$225	24	\$5,400
Senior Professional	\$165	4	\$660
Analyst	\$125	0	\$0
<b>Total</b>			<b>\$6,600</b>

**Task:** Boundary and Topographic Survey

**Description:** This task will complete Filed survey to support construction documents.

**Cost:**

Cost Estimate			
Labor Classifications	Rate	Hours	Cost
Survey Manager	\$155	40	\$6,200

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Survey Crew (2 man/GPS)	\$185	100	\$18,500
<b>Total</b>			<b>\$24,700</b>

**Task:** Utility Base Map and Data Collection

**Description:** This task will collect existing utility as-builts and blue stake data to generate a utility base map.

**Cost:**

<b>Cost Estimate</b>			
<b>Labor Classifications</b>	<b>Rate</b>	<b>Hours</b>	<b>Cost</b>
Project Manager	\$225	4	\$900
Senior Professional	\$165	8	\$1,320
Analyst	\$125	24	\$3,000
<b>Total</b>			<b>\$5,220</b>

**Task:** Geotechnical Analyses

**Description:** This task will perform geotechnical analyses to support design and construction.

**Cost:**

<b>Cost Estimate</b>			
<b>Labor Classifications</b>	<b>Rate</b>	<b>Hours</b>	<b>Cost</b>
Project Manager	\$225	16	\$3,600
Senior Professional	\$165	24	\$3,960
Analyst	\$125	80	\$10,000
<b>Total</b>			<b>\$17,650</b>

**Task:** Existing and Proposed Conditions Hydrology and Hydraulic Analyses

**Description:** This task will update and finalize existing and proposed conditions hydrology and hydraulics (H&H) to support design. Preliminary H&H was developed as part of the North Carson Area Drainage Plan completed by Carson City, the Carson Water Subconservancy District, and FEMA in June 2020.

**Cost:**

<b>Cost Estimate</b>			
<b>Labor Classifications</b>	<b>Rate</b>	<b>Hours</b>	<b>Cost</b>
Project Manager	\$225	8	\$1,800
Outreach Specialist	\$165	40	\$6,600

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Analyst	\$125	120	\$15,000
<b>Total</b>			<b>\$23,400</b>

**Task:** Public Meeting

**Description:** This task will conduct a public meeting to solicit input on basin design and aesthetics.

**Cost:**

<b>Cost Estimate</b>			
<b>Labor Classifications</b>	<b>Rate</b>	<b>Hours</b>	<b>Cost</b>
Project Manager	\$225	4	\$900
Senior Professional	\$165	16	\$2,640
Analyst	\$125	24	\$3,000
<b>Total</b>			<b>\$6,540</b>

**Task:** Civil Design

**Description:** This task will complete plan production with milestones at 30%, 60%, 95%, and final. The final deliverable will be plans, specifications, and cost estimate for construction of the basin.

**Cost:**

<b>Cost Estimate</b>			
<b>Labor Classifications</b>	<b>Rate</b>	<b>Hours</b>	<b>Cost</b>
Project Manager	\$225	80	\$18,000
Senior Professional	\$165	120	\$19,800
Analyst	\$125	320	\$40,000
<b>Total</b>			<b>\$77,800</b>

**Task:** Landscape Design

**Description:** This task will complete design of landscape features and revegetation plan to support the basin construction.

**Cost:**

<b>Cost Estimate</b>			
<b>Labor Classifications</b>	<b>Rate</b>	<b>Hours</b>	<b>Cost</b>
Project Manager	\$225	24	\$5,400
Senior Professional	\$165	60	\$9,900
Analyst	\$125	120	\$15,000

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	<b>Total</b>	<b>\$30,300</b>
--	--------------	-----------------

**Task:** Environmental Permitting

**Description:** This task will complete environmental assessments and permitting required prior to construction.

**Cost:**

<b>Cost Estimate</b>			
<b>Labor Classifications</b>	<b>Rate</b>	<b>Hours</b>	<b>Cost</b>
Project Manager	\$225	24	\$5,400
Senior Professional	\$165	60	\$9,900
Analyst	\$125	120	\$15,000
<b>Total</b>			<b>\$30,300</b>

**Task:** FEMA CLOMR/LOMR Application

**Description:** This task will complete preparation, submittal, and approval by FEMA of a Conditional Letter of Map Revision and Letter of Map Revision per the basin design and downstream impacts to the Special Flood Hazard Area(s). The Letter of Map Revision will be based on survey as-built data.

**Cost:**

<b>Cost Estimate</b>			
<b>Labor Classifications</b>	<b>Rate</b>	<b>Hours</b>	<b>Cost</b>
Project Manager	\$225	32	\$7,200
Senior Professional	\$165	80	\$13,200
Analyst	\$125	120	\$15,000
<b>Total</b>			<b>\$35,400</b>

**Task:** Stormwater Pollution Prevention Plan

**Description:** This task will develop the SWPPP for inclusion in the final plan set.

**Cost:**

<b>Cost Estimate</b>			
<b>Labor Classifications</b>	<b>Rate</b>	<b>Hours</b>	<b>Cost</b>
Project Manager	\$225	8	\$1,800
Senior Professional	\$165	24	\$3,960

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<b>Analyst</b>	<b>\$125</b>	<b>80</b>	<b>\$10,000</b>
<b>Total</b>			<b>\$15,760</b>

**Pre-award, management, and design project subtotal = \$385,370**

**Summary:** The above tasks constitute the preconstruction portion of the mitigation project, from pre-award activities to developing construction documents. Construction costs are provided in a separate attachment as an Engineer's Estimate of Probable Cost.



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## HMGP Cost Estimate Spreadsheet

DATE	JURSDICTION NAME	DISASTER & PROJECT OR PLANNING #	PROJECT OR PLANNING TITLE
4/22/2022	Carson City	DR-4523-NV	Maxwell Detention Basin

#	Item Name	Unit Quantity	Unit of Measure	Unit Cost	Cost Estimate Total
1	Pre-Award Costs:	1	EA	\$ 20,000.00	\$ 20,000.00
2	Grant Management	1	EA	\$ 96,700.00	\$ 96,700.00
3	Project Management	1	EA	\$ 6,600.00	\$ 6,600.00
4	Boundary and Topographic Survey	1	EA	\$ 24,700.00	\$ 24,700.00
5	Earthen Channel	3820	CY	\$ 8.00	\$ 30,560.00
6	Construction Management	1	EA	\$ 45,000.00	\$ 45,000.00
7	Clear and Grub Basin and Fill Location	5	AC	\$ 12,000.00	\$ 60,000.00
8	Riprap (6")	148	CY	\$ 150.00	\$ 22,200.00
9	Remove Existing Culvert at Goni Road	125	LF	\$ 35.00	\$ 4,375.00
10	Job Site Supervision	1	EA	\$ 20,000.00	\$ 20,000.00
11	Traffic Control	1	EA	\$ 7,500.00	\$ 7,500.00
12	FEMA CLOMR/LOMR Applications	1	EA	\$ 35,400.00	\$ 35,400.00
13	Seeding/Passive Landscaping	35332	SY	\$ 7.20	\$ 254,390.40
14	Basin Earthwork	62200	CY	\$ 8.25	\$ 513,150.00
15	Detention Basin Outlet and Trash Rack	1	EA	\$ 85,000.00	\$ 85,000.00
16	Split Rail Fence	1600	LF	\$ 25.00	\$ 40,000.00
17	Erosion Control	1	EA	\$ 10,000.00	\$ 10,000.00
18	Construction Staking	1	EA	\$ 10,000.00	\$ 10,000.00
19	Stormwater Polution Prevention Plan	1	EA	\$ 15,760.00	\$ 15,760.00
20	RCP Culvert (30")	200	LF	\$ 190.00	\$ 38,000.00
21	Environmental Permitting	1	EA	\$ 30,300.00	\$ 30,300.00
22	Mobilization/Demobilization	1	EA	\$ 65,000.00	\$ 65,000.00
23	Dust Control	1	EA	\$ 15,000.00	\$ 15,000.00
24	RCP Culvert (42")	200	LF	\$ 250.00	\$ 50,000.00
25	Riprap (15")	324	CY	\$ 180.00	\$ 58,320.00
26	Construction Contingency (15%)	1	EA	\$ 252,269.31	\$ 252,269.31
27	Civil Design	1	EA	\$ 77,800.00	\$ 77,800.00
28	Landscape Design	1	EA	\$ 30,300.00	\$ 30,300.00
29	Roadway Pavement	360	SF	\$ 10.00	\$ 3,600.00
30	Geotechnical Analyses	1	EA	\$ 17,650.00	\$ 17,650.00
31	Existing and Proposed Conditions H&H Analyses	1	EA	\$ 23,400.00	\$ 23,400.00
32	Quality Control	1	EA	\$ 10,000.00	\$ 10,000.00
33	Public Meeting	1	EA	\$ 6,540.00	\$ 6,540.00
34	Construction Removal - Existing Pavement	360	SF	\$ 3.00	\$ 1,080.00
35	Utility Relocations	2	EA	\$ 30,000.00	\$ 60,000.00
36	Maintenance Roadway	330	SY	\$ 15.00	\$ 4,950.00
37	Utility Base Map and Data Collection	1	EA	\$ 5,220.00	\$ 5,220.00
38					\$ -
39					\$ -
40					\$ -
<b>Total Project Cost Estimate:</b>				<b>\$</b>	<b>2,050,764.71</b>



## CARSON CITY NEVADA

### Consolidated Municipality and State Capital

## PUBLIC WORKS

### CARSON CITY ALERT SITES SCOPE OF WORK

The proposed project includes upgrading the existing nine ALERT sites to allow for continued utilization of all sites. In addition, purchasing spare parts for maintenance personnel to have on hand is essential for the City to maintain the emergency alert system's functionality as the sites are located in remote locations throughout the watersheds. Often, the City has little inclination of what may be damaged at the sites until arrival and assessment. The project also includes adding one additional ALERT site near the upper portion of the Goni Wash watershed. Incorporating an additional ALERT site in the upper Goni area would provide emergency warnings that would benefit over 100 structures in the watershed.

#### Tasks and Activities

##### Task 1: Obtain updated quotation

Quotations received for the ALERT system parts are only valid for 60 days from the date they were received. The first task will be to obtain an updated quotation that reflects the current prices of parts.

##### Task 2: Order parts

Parts will be ordered by the Carson City Public Works Department. Parts will be received by the Carson City Public Works Warehouse located at 3505 Butti Way, Carson City, NV 89701. Materials will be stored in the warehouse until task 4 is initiated.

##### Task 3: Permitting

A permit from the Bureau of Land Management (BLM) will need to be obtained to install the proposed site near the upper Goni watershed. A timeframe of 18 months has been allotted to permitting efforts based on previous experience in obtaining permits from BLM.

##### Task 4: Construction -Proposed Site Installation

A 10' tall (above ground) steel, standpipe will be installed 2' deep. The approximate volume of material to be excavated will be 0.4 CY, assuming 2' of excavation for the 12" diameter pipe and 1' vertical over excavation. Materials will be staged at the Carson City Public Works maintenance yard as shown in the Maps Section. If materials need to be stored in a weather-proof area, they will be staged inside the warehouse building located at 3505 Butti Way, Carson City, NV 89701. The various parts for the ALERT station will be installed on the standpipe and the site will be incorporated into the ALERT system. This task will be completed by an expert technician and is included in the cost-estimate as part of item #17.

##### Task 5: Construction – Existing Sites

The existing nine ALERT sites will be evaluated, and parts will be replaced as needed within the specified timeframe. The timing of this task at the various sites will likely follow the annual maintenance schedule provided. Maintenance checklists will be completed at the time of site evaluation/part replacement.

Task 6: Project Close-out

The project log kept for the various sites will be reviewed. Any spare parts will be stored in the warehouse building at the Carson City Public Works maintenance yard.

Task 7: Grant Close-out

Grant will be closed out by sub applicant.

# HAZARD MITIGATION GRANT PROGRAM PROJECT SUBAPPLICATION

**NOTE:** Please click within the greyed section to begin typing in each section of the application.

**DISASTER NUMBER:**

DR-4523-NV

**JURISDICTION NAME:**

Carson City Public Works

**PROJECT TITLE:**

Carson City ALERT Sites

**PROJECT NUMBER:**

N/A

PROJECT NUMBER IS THE CONTROL NUMBER RECEIVED AT TIME OF SUCCESSFUL NOI SUBMITTAL



**Subapplications are due postmarked to NV DEM by:**

**DR-4523-NV: ASAP  
Deadline: July 5, 2022**

# HAZARD MITIGATION GRANT PROGRAM (HMGP)

## INTRODUCTION

### INTRODUCTION

As a result of the declaration of a major federal disaster or aggregate Fire Management Assistance declarations, the State of Nevada is eligible for HMGP funding. The State has established priorities to accept project subapplications from subapplicants statewide, state agencies, tribal governments, local governments, and Private Non-Profits.

Hazard mitigation activities are aimed at reducing or eliminating future damages. Activities include cost effective hazard mitigation projects and hazard mitigation plans approvable by the Federal Emergency Management Agency (FEMA).

Nevada's Enhanced State Hazard Mitigation Plan (ESHMP) accreditation resulted in additional dollars available for local agencies' hazard mitigation plan and project funding for Hazard Mitigation Grant Program (HMGP). In order to maintain ESHMP status, further information is requested by FEMA. This information is requested as a means of assessing the pro-activity of your community or agency.

### PUBLIC ASSISTANCE

If your project is aimed at repairing a damaged facility resulting from a federally declared disaster, contact the Public Assistance (PA) Program at [disaster-recovery@dps.state.nv.us](mailto:disaster-recovery@dps.state.nv.us). HMGP does not fund repairs for damages that result after a disaster.

### TIME EXTENSIONS

Time extensions may be requested, and will be approved or denied on a case-by-case basis. To request additional time to submit a subapplication, send an email to the [mitigation@dps.state.nv.us](mailto:mitigation@dps.state.nv.us) mailbox. The subject line must include: "Subapplication Time Extension Request (include Disaster Number and Project Control Number)". The body of the message must include justification and specific details supporting why more time is needed and how much additional time is requested.

### QUESTIONS

Submit all HMGP subapplication questions to the following mailbox: [jwoodward@dps.state.nv.us](mailto:jwoodward@dps.state.nv.us)

## HAZARD MITIGATION GRANT PROGRAM REGULATIONS

### REGULATIONS

Federal funding is provided under the authority of the [Robert T. Stafford Emergency Assistance and Disaster Relief Act \(Stafford Act\)](#) through FEMA and the Nevada Division of Emergency Management (NV DEM). NV DEM is responsible for identifying program priorities, reviewing subapplications and forwarding recommendations for funding to FEMA. FEMA has final approval for activity eligibility and funding.

The federal regulations governing HMGP are found in Title 44 of the Code of Federal Regulations (44CFR), Part 201 (Planning) and Part 206 (Projects) and in Title 2 of the Code of Federal Regulations (2CFR), Part 200 (Uniform Administrative Requirements).

The FEMA regulations that establish the agency-specific process for implementing NEPA are set forth in 44 CFR Part 10. FEMA will lead the NEPA clearance process.

### FEMA GUIDANCE

FEMA requires that all projects adhere to the [Hazard Mitigation Assistance Unified Guidance 2015](#).

## HAZARD MITIGATION GRANT PROGRAM ELIGIBILITY CHECKLIST

Before completing the subapplication, review the following HMGP eligibility checklist to ensure project meets the requirements for HMGP funding.

- Construction/Ground Breaking:** No construction or ground breaking activities are allowed prior to FEMA approval. HMGP does not fund projects that are in progress or projects that have already been completed.
- Scope of Work:** The project scope of work (SOW) must be consistent with the SOW provided in the approved Notice of Interest (NOI).
- Benefit Cost Analysis:** FEMA Benefit Cost Analysis (BCA) Toolkit Version 6.0 must be used to conduct the BCA. FEMA will only consider subapplications that use a FEMA-approved BCA methodology. Documentation to support all BCA calculations must be included in subapplication. Projects with a benefit cost ratio (BCR) of less than 1.0 will not be considered. BCA will be verified by FEMA and NV DEM upon subapplication submittal. 5% Initiative Projects do not need a BCA. Planning grants do not need a BCA.
- Subapplicant Eligibility:** Subapplicant must be an eligible State Agency, Local Government (City, County, Special Districts), Federally Recognized Tribe or Private Nonprofit (PNP) Organization. PNP is defined as private nonprofit educational, utility, emergency, medical, or custodial care facility, facilities providing essential governmental services to the general public and such facilities on Indian reservations (see 44 CFR Sections 206.221(e) and 206.434(a)(2)).
- LHMP/MJHMP:** Subapplicant must have a FEMA approved and adopted Local or Multi Jurisdictional Hazard Mitigation Plan (LHMP or MJHMP) to be eligible for HMGP funding. If a jurisdiction has its own governing body, jurisdiction must be covered under its own plan. LHMP's/MJHMP's expire five years after FEMA approval. Failure to update plan before expiration date may cause project deobligation.
- Cost Share:** Local funding match of 25% of the total project cost is required by the subapplicant. HMGP matching funds must be from a non-federal source. State does not contribute to local funding match.
- Period of Performance:** Projects must be completed (including close-out) within the 36 month Period of Performance (POP). POP begins upon FEMA approval of the subapplication.

## HAZARD MITIGATION GRANT PROGRAM ELIGIBILITY CHECKLIST (continued)

- Complete Subapplication:** Failure to include all required documentation will delay the processing of your subapplication and may result in denial of project. The SOW, cost estimate, cost estimate narrative, work schedule and BCA must accurately mirror each other to be considered for funding. The budget narrative must include a detailed description of every cost estimate line-item, including the methodology used to estimate each cost.
  
- Regulations:** Subapplications that are inconsistent with state and federal HMGP regulations, or do not meet eligibility criteria will not be considered.
  
- Duplication of Programs:** HMGP funding cannot be used as a substitute or replacement to fund activities or programs that are available under other federal authorities, known as Duplication of Programs (DOP).
  
- Time Extensions:** Unless a time extension has been approved before the deadline, subapplications must be postmarked by the applicable deadline to be considered for funding.



**SUBAPPLICANT MUST BE ABLE TO CHECK EVERY BOX TO QUALIFY FOR HMGP FUNDING.**



## SUBAPPLICATION FORMAT INSTRUCTIONS

NV DEM requires the following format to be used for all HMGP subapplications.

### COMPLETE SUBAPPLICATION PACKAGE CONSISTS OF THE FOLLOWING:

**Electronic Version of the completed application**

- Table of Contents
- All electronic attachments must be clearly titled

**Send electronic version to NV DEM either by Thumb Drive or by DropBox or Microsoft Word 365 Zip function.**

- Attachments must be in one of the following formats: Microsoft Word Version 2007 (or newer), Microsoft Excel or Adobe PDF
- Benefit Cost Analysis (BCA) 6.0 must be included
- All electronic attachments must be clearly titled

### ORGANIZATION OF THE BINDER SECTIONS MUST BE TABBED IN THE FOLLOWING FORMAT:

0. Table of Contents
1. Subapplication
2. Scope of Work
3. Designs
4. Studies
5. Maps
6. Photos
7. Schedule (Additional documentation work schedule components, Gantt chart, etc.)
8. Budget ([HMGP Cost Estimate Spreadsheet](#) and cost estimate narrative)
9. Match ([Local Match Commitment Letter Template](#))
10. BCA Report ([BCA Version 6.0](#) report and BCA supporting documentation)
11. Maintenance ([Project Maintenance Letter Template](#))
12. Environmental ([FEMA's Site Information, Environmental Review and Checklist](#) and all other environmental documentation)
13. Supporting Docs (Any extra supporting documentation)

### MAIL OR DELIVER COMPLETED SUBAPPLICATIONS TO:

Nevada Division of Emergency Management  
Attention: Hazard Mitigation  
2478 Fairview Dr.  
Carson City, NV 89701

## PROJECT SUBAPPLICATION FORM

### SUBAPPLICANT INFORMATION

**1. SUBAPPLICANT:**   
NAME OF STATE AGENCY, TRIBAL GOVERNMENT, LOCAL GOVERNMENT, PRIVATE NON-PROFIT OR SPECIAL DISTRICT APPLYING FOR FUNDING

**2. TYPE:**                      STATE/LOCAL GOVERNMENT                          TRIBAL GOVERNMENT                          PRIVATE NON-PROFIT                          SPECIAL DISTRICT   

**3. FIPS #:**                                            IF YOU DO NOT KNOW YOUR FEDERAL IDENTIFICATION PROCESSING SYSTEM NUMBER (FIPS #), REQUEST BY EMAILING [mitigation@dps.state.nv.us](mailto:mitigation@dps.state.nv.us)

**4. DUNS #:**                                            IF YOU DO NOT KNOW YOUR DATA UNIVERSAL NUMBERING SYSTEM (DUNS) #, CALL DUN & BRADSTREET (D&B) @ 1-866-705-5711 FOR INFORMATION

**5. COUNTY:**                                            THE NAME OF THE COUNTY WHERE THE PROPOSED PROJECT IS LOCATED

**6. POLITICAL DISTRICT NUMBERS:**

CONGRESSIONAL:	2	<small>PROVIDE ONLY THE NUMBERS OF THE POLITICAL DISTRICTS FOR THE SUBAPPLICANT</small>
STATE ASSEMBLY:	16	
STATE LEGISLATIVE:	40	

**7. PRIMARY CONTACT:**  
POINT OF CONTACT FOR YOUR PROJECT. NEVADA DEM WILL CONTACT THIS PERSON FOR QUESTIONS AND/OR REQUESTS FOR INFORMATION

**NAME:**                       Mr.     Ms.    **FIRST:**     **LAST:**

**TITLE:**                     

**ORGANIZATION:**                     

**ADDRESS:**                     

**CITY:**                          **STATE:**     **ZIP CODE:**

**TELEPHONE:**                          **FAX:**

**EMAIL:**                     

**8. ALTERNATIVE CONTACT:**  
BACK-UP POINT OF CONTACT FOR YOUR PROJECT. NEVADA DEM WILL CONTACT THIS PERSON IF PRIMARY CONTACT IS UNAVAILABLE

**NAME:**                       Mr.     Ms.    **FIRST:**     **LAST:**

**TITLE:**                     

**ORGANIZATION:**                     

**ADDRESS:**                     

**CITY:**                          **STATE:**     **ZIP CODE:**

**TELEPHONE:**                          **FAX:**

**EMAIL:**

**LOCAL HAZARD MITIGATION PLAN INFORMATION**

**9. LOCAL HAZARD MITIGATION PLAN (LHMP) REQUIREMENT:**

- i** A FEMA approved and locally adopted LHMP is required to receive federal funding for all project subapplication activities. Subapplicants for HMGP funding must have a FEMA-approved Mitigation Plan in place at the time of sub-award. Subapplication will be reviewed to ensure that the proposed activity is in conformance with subapplicant’s plan.

For State agencies, please use the currently approved Enhanced State Hazard Mitigation Plan.

**A. NAME/TITLE OF YOUR LHMP:** Carson City Hazard Mitigation Plan July 14, 2021

<b>B. LOCAL SINGLE JURISDICTIONAL MULTHAZARD MITIGATION PLAN:</b>	DATE SUBMITTED TO NV DEM:	7/1/2021	<b>O R LOCAL MULTI JURISDICTIONAL MULTHAZARD MITIGATION PLAN:</b>	DATE SUBMITTED TO NV DEM:	
	DATE APPROVED BY FEMA:	8/18/2021		DATE APPROVED BY FEMA:	
	DATE ADOPTED BY LOCAL AGENCY:	9/16/2021		DATE ADOPTED BY LOCAL AGENCY:	
				LEAD AGENCY:	

**C. IF YOUR PROJECT IS REFERENCED IN YOUR LHMP, INDICATE WHERE THE PROPOSED PROJECT CAN BE FOUND; USE N/A FOR NOT APPLICABLE BOXES:**

CHAPTER	PART	SECTION	PAGE
N/A	Goal 5	8	8-17 – 8-20



**DO NOT INCLUDE A COPY OF YOUR PLAN WITH SUBAPPLICATION.**

**D. PROVIDE A SHORT NARRATIVE DETAILING HOW YOUR PROJECT ALIGNS WITH THE RISK AND HAZARD ASSESSMENTS, STRATEGIES, GOALS AND/OR OBJECTIVES OF YOUR PLAN:**

Goal 5: Reduce the possibility of damage and losses due to floods.

Upgrading and maintaining the emergency ALERT system reduces the possibility of damage and losses due to floods by enabling City personnel to have ample time to react to flood prone areas and implement the Flood Emergency Plans (i.e. Sandbagging Plan). The Carson City ALERT system operates in conjunction with the National Weather Service (NWS) and Washoe County. Upgrading and maintaining these flood emergency alert sites also makes progress toward the Mitigation Plan goal to work in coordination with adjacent counties and other entities to support a common goal and regional approach to flood mitigation.

**COMMUNITY INFORMATION**

**10. COMMUNITY PARTICIPATION:**

**A. CHECK BOX(ES) IF YOUR COMMUNITY PARTICIPATES IN ANY OF THE FACTORS BELOW:**

Select a column appropriate to your type of project. Acronyms include: Community Wildfire Protection Plan (CWPP), Community Rating System (CRS) Plan and Unreinforced Masonry (URM) Participation.

FIRE	FLOOD	EARTHQUAKE
<input type="checkbox"/> CWPP, FIRE WIRE, FIRE SAFE	<input checked="" type="checkbox"/> CRS PLAN	<input type="checkbox"/> SHAKEOUT DRILL PARTICIPATION
<input type="checkbox"/> CURRENT CEQA ACTIVITY	<input type="checkbox"/> CURRENT CEQA ACTIVITY	<input type="checkbox"/> URM PARTICIPATION
<input type="checkbox"/> DEFENSIBLE SPACE	<input checked="" type="checkbox"/> HYDROLOGY STUDY	<input type="checkbox"/>

**B. PROVIDE A NARRATIVE DESCRIPTION OF ALL OF FACTORS SELECTED FROM LIST ABOVE:**

Carson City participates in the National Flood Insurance Program (NFIP) Community Rating System (CRS). The City received a Class 6 rating in the last Community Assistance Visit (CAV) in 2018. Carson City also participates in hydrology studies to restudy areas throughout the City needing more accurate information.

**C. IS YOUR JURISDICTION REQUIRED TO PROVIDE PUBLIC NOTICE OF THIS PROJECT?**

Yes  No If yes, provide details:

The local governing body of Carson City, the Carson City Board of Supervisors (BOS) provided approval at a public meeting for the Chief Stormwater Engineer to submit this project to NV DEM for potential funding. If the City is successful in obtaining funding, the BOS will be notified via a public meeting.

**PROJECT INFORMATION**

**11. PROJECT TITLE:** Carson City ALERT Sites

MUST USE THE SAME PROJECT TITLE ORIGINALLY USED IN THE APPROVED NOTICE OF INTEREST (NOI). IF YOU NEED TO CHANGE YOUR PROJECT TITLE, CONTACT NV DEM at [mitigation@dps.state.nv.us](mailto:mitigation@dps.state.nv.us)

**12. PROJECT LOCATION:**

**A. IDENTIFY THE COUNTY/COUNTIES WHERE THE ACTIVITY WILL OCCUR:**

Carson City – Independent City

**B. LATITUDE/LONGITUDE COORDINATES:**

FEMA requires that all projects be geo-coded using latitude and longitude (lat/long) using NAD-83 or WGS-84 datum. The lat/long coordinates must be expressed in degrees including five or more decimal places (e.g., latitude 36.999221, longitude -109.044883).

LATITUDE
Multiple

LONGITUDE
Multiple



**IF THERE ARE MORE THAN ONE SET OF LAT/LONG COORDINATES, PROVIDE ON SEPARATE DOCUMENT AND ADD TO MAP SECTION OF BINDER.**

**C. STRUCTURE COORDINATES:**

- For projects that protect buildings or other facilities, provide coordinates for each structure at either the front door of the structure or the intersection of the public road and driveway that is used to access the property.
- For large activity areas, such as detention basins or vegetation management projects, the location must be described by three or more coordinates that identify the boundaries of the project.
- The polygon created by connecting the coordinates must encompass the entire project area.

This is multi-watershed project. The polygon created by connecting the following coordinates encompasses the entire project area:

(39.09089°N, 119.8949°W), (39.12965°N, 119.8988°W), (39.16388°N, 119.883°W), (39.18546°N, 119.8504°W), (39.21654°N, 119.7716°W), (39.17561°N, 119.6953°W), (39.11946°N, 119.6768°W), (39.08864°N, 119.7494°W)

**D. STAGING AREA:**

Describe the project staging area. This is the area where the project equipment, materials and/or debris will be staged. Include a vicinity map with the proposed staging area(s) in the map section of the binder.

This project will have minimal equipment and materials to be staged. The Contractor will have ability to stage at the Carson City Public Works Maintenance Yard located at 3505 Butti Way, if necessary.



**AERIAL MAP(S) OF STAGING AREA(S) MUST BE INCLUDED IN SUBAPPLICATION.**

**E. SITE PHOTOS:**

- A minimum of three ground photos per project site are required. Include in photo section of the binder.

Three photos were provided if available. A few of the sites only have two photos as many of the sites are remote and difficult to access in the winter.

**F. MAPPING REQUIREMENTS:**

Provide the following mapping elements in the map section of the binder:

- If project area has been mapped using GIS software, include the completed Shapefiles in electronic versions of full application.
- Include a vicinity map of the general area showing major roads. Aerial photographs may be used as vicinity maps.
- Prominently mark the project location on the vicinity map.
- Provide a detailed project map that clearly identifies the project boundaries.
- Project map must show all lat/long coordinates provided in the project description.
- Vicinity map and the project map must both have a north arrow and scale.

Scale: N/A



**SEND ONLY ELECTRONIC VERSIONS OF MAPS.**

**G. PUBLIC ASSISTANCE (PA) PROGRAM FUNDING:**

List any Public Assistance Disaster Survey Reports (DSR) or Project Worksheets (PWs) that were completed at the project location from previous disasters. List all current engagement with PA for this current disaster and include date(s) if known:

N/A

**H. DEED RESTRICTIONS THAT LIMIT FEDERAL FUNDING:**

Is there a deed restriction or permanent conservation easement on the property at the project site that would prohibit federal disaster funding (e.g., a previously FEMA funded acquisition of a structure on this property)? If yes, describe in detail.

No deed restrictions or permanent conservation easements associated with the ALERT sites.

**13. PROJECT DESCRIPTION:**

**A. APPLICATION TYPE:**

Project  5% Activity

*5% activities are defined as mitigation actions that are consistent with your local hazard mitigation plan and meet all HMGP requirements, but may be difficult to conduct a standard BCA to prove cost-effectiveness. Examples: early earthquake warning system, back-up generators for critical facilities, public awareness campaign, mitigation specific community outreach activities.*

**B. PROJECT TYPE:**

Select at least one project type; select as many as needed to accurately describe project.

<input type="checkbox"/> EARTHQUAKE	<input type="checkbox"/> FIRE	<input checked="" type="checkbox"/> FLOOD	<input checked="" type="checkbox"/> OTHER
<input type="checkbox"/> CODE ENFORCEMENT	<input type="checkbox"/> DEFENSIBLE SPACE	<input type="checkbox"/> ACQUISITION	<input type="checkbox"/> CRITICAL FACILITY GENERATOR(S)
<input type="checkbox"/> NON-STRUCTURAL	<input type="checkbox"/> FIRE RESISTANT BUILDING MATERIALS	<input type="checkbox"/> DRY FLOOD PROOFING	<input type="checkbox"/> DROUGHT <input type="checkbox"/> TSUNAMI
<input type="checkbox"/> STRUCTURAL	<input type="checkbox"/> FIRE VEGETATION MANAGEMENT	<input type="checkbox"/> FLOOD CONTROL	<input type="checkbox"/> WIND
<input type="checkbox"/> NON-STRUCTURAL & STRUCTURAL	<input type="checkbox"/> SOIL STABILIZATION	<input type="checkbox"/> ELEVATION	<input checked="" type="checkbox"/> OTHER: <span style="border: 1px solid black; padding: 2px;">Early warning flood alert</span>
<input type="checkbox"/> <a href="#">CLIMATE RESILIENCY MITIGATION ACTION</a> (CRMA): Projects that mitigate risk through restoration of the natural environment			

**C. DESCRIBE PROBLEM/HAZARDS/RISKS:**

Describe the problem this project is attempting to solve and the expected outcome. Describe the hazards and risks to life, safety and any improvements to property in the project area for at least the last 25 years. Describe in detail how the project reduces hazard effects and risks.

Carson City, Nevada experiences seasonal flood-related damage nearly every year. Due to the location of the City, it is not uncommon for the Base Flood to occur when prolonged precipitation is accompanied by an early snowmelt due to a warm-weather trend. This type of flooding occurred in 1997, causing many rivers and creeks throughout Western Nevada watersheds to rise to 100-year flood levels. It was estimated that nearly half of Carson City residents were affected by the flood. Having emergency alerts allowed the City to prevent hazards to life and to minimize property damage to the greatest extent possible.

In the 1980's nine emergency ALERT sites with rain gauges and a variety of other sensors were installed in various watersheds throughout Carson City to provide emergency alerts for flash floods. Eight of the nine sites are still functional; however, upgrades are necessary to maintain and improve their current condition. The Carson City ALERT sites have enabled the National Weather Service to issue warnings and City personnel as well as homeowners to best prepare as soon as possible. The ALERT sites are essential to effective use of the Mitigation Sandbagging Plan. The warnings allow the City provide

resources in a timely manner where needed most. The system has proven to be a necessity during the recent flood events in 1997, 2005, and 2017.

**D. DESCRIBE RECENT EVENTS THAT INFLUENCED THE SELECTION OF THIS PROJECT:**

Describe recent events (e.g. changes in the watershed, discovery of a new hazard, zoning requirements, inter-agency agreements, etc.) that influenced the selection of this project.

Over the past 40 years, the ALERT system has proven to be an essential resource for the City. The system’s usefulness during the recent flood events in 1997, 2005, and 2017 have influenced the need to upgrade and maintain the sites. The City coordinated with Washoe County/Truckee River Flood Management Authority (TRFMA) and the National Weather Service (NWS) to identify the options to upgrade the existing ALERT system as the Carson City sites are part of a greater system.

The City looked into pursuing system upgrades to ALERT2, an improved version of the existing ALERT system as well as converting the existing system over to GOES Satellite. After much coordination with the NWS and TRFMA and discovery of the high annual fees that come with the systems, the City decided to move forward with the proposed action which is to purchase the parts that the existing ALERT sites are in need of to restore full functionality as well as spare parts for the sites. It is essential for the City to have spare parts on hand as the sites are located in remote locations throughout the watersheds that can be difficult to access. Without having any inclination of what the City will find when accessing the sites for maintenance, being prepared with all necessary parts is essential to maintaining the emergency warning system. The City is also proposing to add one additional ALERT site near the upper portion of the Goni Wash watershed. Incorporating an additional ALERT site in the upper Goni area would provide emergency warnings that would benefit over 100 structures in the Goni Wash watershed.

**E. SCOPE OF WORK (SOW):**

**STATE EXACT SOW DOCUMENT TITLE:** Carson City Alert Sites Scope of Work

1. Describe the entire SOW of the project in clear, concise, ample detail.
2. Must provide a thorough description of **all tasks and activities** to be undertaken.
3. Must be written in sequential order from start to finish of the project.
4. Describe any land acquisition activities, and/or right-of-way or access easements that need to be obtained.
5. If structural, discuss how the structure/building/facility will be constructed or retrofitted.
6. Include building or structure dimensions, material types, depth and width of excavations, volume of materials excavated, type of equipment to be used, staging and parking areas, and any phasing of the project.
7. If any tunneling is proposed, describe the method and any temporary trenches or pits.
8. Describe any demolition activities that need to occur prior to construction or retrofitting.



**INSERT THIS DOCUMENT IN THE SOW ORDER OF YOUR ELECTRONIC DOCUMENTS.**

**F. HAS YOUR JURISDICTION PREVIOUSLY RECEIVED HMGP FUNDING?**

Yes  No  Unknown | If yes, provide disaster number(s):

**G. HAS YOUR JURISDICTION RECEIVED ANY OTHER FUNDING?**

Describe all other funding received for this project and all other recent projects. Identify the funding source (i.e., Federal, State, Private, etc.).

No other funding has been received or requested for this project. A BRIC grant (Federal) was awarded for project scoping, preliminary design, preliminary environmental & historic preservation (EHP) and cost benefit analysis for the Sutro Terrace Storm Drain, Basins, and associated work.

**H. RELATED PROJECTS:**

Describe any other projects or project components (whether or not funded by FEMA), which may be related to the proposed project, or are in (or near) the proposed project area. FEMA must look at all projects to determine a cumulative effect. FEMA reviews all interrelated projects under NEPA regulations.

There are not any other projects related to the proposed project. This is a project that spans multiple watersheds to provide city-wide emergency alerts for flash floods.

**I. HAZARD ANALYSIS TYPE:**

Select the hazard(s) below that this project will protect against. Select as many as needed.

- |  |   |   |  |
|--|---|---|--|
| <input type="checkbox"/> BIOLOGICAL      | <input type="checkbox"/> EARTHQUAKE       | <input type="checkbox"/> LAND SUBSISTENCE           | <input type="checkbox"/> TERRORIST               |
| <input type="checkbox"/> CHEMICAL        | <input type="checkbox"/> FIRE             | <input type="checkbox"/> MUD/LANDSLIDE              | <input type="checkbox"/> TORNADO                 |
| <input type="checkbox"/> CIVIL UNREST    | <input type="checkbox"/> FISHING LOSSES   | <input type="checkbox"/> NUCLEAR                    | <input type="checkbox"/> TOXIC SUBSTANCES        |
| <input type="checkbox"/> COASTAL STORM   | <input checked="" type="checkbox"/> FLOOD | <input type="checkbox"/> SEVERE ICE STORM           | <input type="checkbox"/> TSUNAMI                 |
| <input type="checkbox"/> CROP LOSSES     | <input type="checkbox"/> FREEZING         | <input checked="" type="checkbox"/> SEVERE STORM(S) | <input type="checkbox"/> WINDSTORM               |
| <input type="checkbox"/> DAM/LEVEE BREAK | <input type="checkbox"/> HUMAN CAUSE      | <input type="checkbox"/> SNOW                       | <input type="checkbox"/> OTHER (describe below): |
| <input type="checkbox"/> DROUGHT         | <input type="checkbox"/> HURRICANE        | <input type="checkbox"/> SPECIAL EVENTS             |  |

**J. DESIGN PLANS:**

Design plans are not required for this project.

If your project requires design plans, plans should be prepared to supplement the SOW. If the project involves ground disturbance, (e.g. enlarging ditches or culverts, diversion ditches, detention basins, storm water improvements, etc.) include the following:

1. **Scale:** Plans should be drawn to scale (e.g. 1" to 100' or 1" to 200') depicting the entire land parcel, showing buildings, improvements, underground utilities, other physical features, dimensions and cross sections.
2. **Identification:** Indicate agency name, land owner, civil engineer, soil engineer, geologist, map preparer, and date of map preparation. Also, indicate the name of the project.
3. **Legend/Orientation:** Include a legend explaining all lines and symbols. Identify property acreage and indicate direction with a north arrow (pointing to top or right hand side of the plan).
4. **Dimensions:** Show property lines and dimensions. Also, show boundary lines of project and their dimensions if only a portion of the property is being utilized for the project.
5. **Structures:** Identify all existing and proposed buildings and structures including storm drains, driveways, sidewalks and paved areas.
6. **Utilities:** Indicate names and location of utilities on property (water, sewage, gas, electric, telephone, cable).
7. **Roads/Easements:** Indicate location, names, and centerline of streets and recorded roads. Identify any utility, drainage or right-of-way easements on the property.
8. **Drainage:** Show the location, width and direction of flow of all drainage courses on site.
9. **Grading/Topographic Information:** Show existing surface contours on-site and bordering the property
10. **Parking:** Show all construction parking and staging areas and provide dimensions.
11. **Cross Sections:** Provide cross sections of proposed buildings, structures or other improvements, and any trenches, temporary pits or catchment basins.

If applicable, provide studies and engineering documentation, including any Hydrology and Hydraulics (H&H) data. N/A

If applicable, provide drawings or blueprints that show the footprint and elevations.





**PLEASE SEND ELECTRONIC VERSIONS OF DESIGN PLANS, DRAWINGS OR BLUEPRINTS.**

**K. PROJECT ALTERNATIVES:**

Identify three project alternatives:

**1. ALTERNATIVE #1 – NO ACTION:**

Describe the No Action alternative below. The No Action alternative evaluates the consequences of taking no action and leaving conditions as they currently exist.

Currently one of the nine sites (Existing Fire Station #53 Site) is not functional due to need for replacement parts. The No Action alternative will prevent all ALERT sites from being functional. Not having parts necessary to keep the sites working will introduce greater risk of safety hazards and damage due to flash floods. Additionally, not adding the proposed site near the upper Goni Wash watershed will continue to put the structures and people that reside in the watershed at a greater risk of flooding due to lack of emergency warnings.

**2. ALTERNATIVE #2 – PROPOSED ACTION:**

Describe the Proposed Action alternative below. The Proposed Action alternative is the proposed project to solve the problem. Explain why the proposed action is the preferred alternative. Identify how the preferred alternative will solve the problem, why the preferred alternative is the best solution for the community, why and how the alternative is environmentally preferred and why the project is the economically preferred alternative.

The proposed action is to upgrade the existing nine ALERT sites to allow Carson City and the National Weather Service to continue to use them. Adding one additional ALERT site near the upper portion of the Goni Wash watershed is also part of the proposed action. Incorporating an additional ALERT site in the upper Goni area would provide emergency warnings that would benefit over 100 structures in the watershed. Purchasing spare parts for maintenance personnel to have on hand is essential for the City to maintain the emergency alert system's functionality as the sites are located in remote locations throughout the watersheds and the City has no idea of what may be damaged at the Sites until arrival and assessment.

**3. ALTERNATIVE #3 – SECOND ACTION ALTERNATIVE:**

Describe the Second Action alternative below. The Second Action alternative described must also solve the described problem. State why this alternative wasn't chosen. It must be a viable project that could be substituted in the event the proposed action is not chosen.

If the preferred alternative was not chosen, the second action alternative would be to obtain replacement parts to ensure the existing nine ALERT sites are in working condition. Adding an additional site to the ALERT system would not be part of the second action alternative. This is not the preferred alternative as although it does keep the existing ALERT sites functional, it does not introduce additional emergency warning.

**WORK SCHEDULE INFORMATION**

**14. PROJECT WORK SCHEDULE:**

The intent of the work schedule is to provide a realistic appraisal of the time and components required to complete the project.

- Describe each of the major work elements and milestones in the description section below.
- Project subapplication examples are: construction, architectural, design, engineering, inspection, testing, permits, project management, mobilization and de-mobilization.
- State the total timeframe anticipated for each of the work elements.
- State the total timeframe anticipated to complete the project.
- Work schedule must mirror SOW, budget and BCA.OPTIONAL: Provide the work schedule in GANTT chart form as supplemental documentation in the work schedule section of the binder Include this information as an example.

<b>WORK SCHEDULE EXAMPLE</b>		
#	DESCRIPTION	TIMEFRAME
1.	Kick-off, 90% design meetings	3 months
2.	Final contract drawing development	5 months
3.	Open bids and award contract	4 months
4.	Construction – Mobilization	5 months
5.	Construction – Demolition	4 months
6.	Construction – Concrete and conduit work	2 months
7.	Construction – Trenching	2 weeks
8.	Construction – Utility relocation	4 months
9.	Construction – Electrical Installation	1 month
10.	Construction – Site Restoration	1 week
11.	Construction – Complete punch list	2 months
12.	Construction – Demobilization	1 week
13.	Project Close-out and record drawings	2 months
14.	Grant Close out	3 months
<b>TOTAL MONTHS:</b>		<b>36 months</b>



**TOTAL PROJECT DURATION (INCLUDING CLOSE-OUT) MUST NOT EXCEED A 36 MONTH PERIOD OF PERFORMANCE (POP).**

#	DESCRIPTION	TIMEFRAME
1.	Obtain updated quotation (as quotations are only valid for 60 days)	1 month
2.	Order parts	1 month
3.	Permitting	18 months
4.	Construction – Proposed Site Installation	1 month
5.	Construction – Existing Sites	10 months
6.	Project Close-out	2 months
7.	Grant Close-out	3 months
<b>TOTAL MONTHS:</b>		<b>36 months</b>

If more lines are needed than provided, indicate the title of document in box 1 and attach a separate work schedule in the schedule section of binder.

**COST ESTIMATE INFORMATION**

**15. HMGP COST ESTIMATE SPREADSHEET:**

**A. COST ESTIMATE INSTRUCTIONS:**

Using the [HMGP Cost Estimate Spreadsheet](#), provide a detailed cost estimate breakdown.

- Cost estimate describes the anticipated costs associated with the SOW for the proposed mitigation activity. Cost estimates must include detailed estimates of cost item categories.
- Only include costs that are directly related to performing the mitigation activity. If additional work, such as remodeling, additions, or improvements are being done concurrently with the mitigation work, do not include these costs in the submitted budget.
- Documentation that supports the budget must be attached to the subapplication in the budget section of the binder.
- Total costs must be consistent with the requested federal share plus the matching funds and must be consistent with the project cost in the Benefit Cost Analysis (BCA), SOW and work schedule.

#	ITEM NAME	Unit Qty	UNIT	UNIT COST	COST EST TOTAL
1.	Pre-Award Costs: Develop BCA	4	HR	\$150	\$600
2.	Temp. Inlet Filter Rolls	4	EA	\$250	\$1000
3.	Temp. Fiber Roll	1850	LF	\$3	\$5550
4.	Hydraulic Mulch	1000	SQYD	\$2	\$2000
5.	Plane Asphalt Concrete Pavement	650	SQYD	\$22	\$14300
6.	Street Sweeping for 30 days	30	EA	\$350	\$10500
7.	Roadway Excavation	70	CY	\$40	\$2800
8.	Aggregate Base, Class 2	210	CY	\$75	\$15750
9.	Remove Concrete Pavement	650	SQYD	\$340	\$10540
10.	Asphalt Concrete, Type B	180	TON	\$150	\$27000
11.	Asphalt Concrete, Leveling	10	TON	\$300	\$3000
12.	Asphalt Concrete Dike, Type A	235	LF	\$15	\$3525
13.	Asphalt Concrete Dike, Type F	125	LF	\$8	\$120
14.	Place Asphalt Concrete	15	SQFT	\$8	\$120
15.	18" Corrugated Steel Pipe Riser	5	LF	\$125	\$625
16.	24" Reinforced Concrete Pipe	275	LF	\$170	\$46750
17.	84" Reinforced Concrete Pipe Install	572	LF	\$400	\$228800
18.	Precast Triple Concrete Box Culvert	44	LF	\$1500	\$66000
19.	Curb Inlet - Type B-1 (L=9')	1	EA	\$6000	\$6000
20.	Curb Inlet - Type B-1 (L=13')	1	EA	\$6300	\$6300
21.	Curb Inlet - Type B-1 (L=15')	1	EA	\$6800	\$6800
22.	Storm Drain Cleanout - Type A-8	3	EA	\$7500	\$22500
23.	8" PVC Sewer	89	LF	\$100	\$8900
24.	Cellular Block (Precast)	4100	SQFT	\$20	\$82000
25.	Project Identification Sign	2	EA	\$1000	\$2000
<b>Total Project Cost Estimate:</b>					<b>\$573480</b>

**B. INELIGIBLE COSTS:**

The following are ineligible line items:

- Lump Sums
- Contingency Costs
- Miscellaneous Costs
- "Other" Costs
- Indirect Charges
- Overhead Costs
- Cents (must use whole dollar amounts, round unit prices up to whole dollars)

**C. PRE-AWARD COSTS:**

Eligible pre-award costs are costs incurred after the disaster date of declaration, but prior to grant award. Pre-award costs directly related to developing the application may be funded.

- Developing a BCA
- Preparing design specifications
- Submission of subapplication
- Gathering environmental and historic data
- Workshops or meetings related to development



**Subapplicants who are not awarded funds will not receive reimbursement for pre-award costs.**

**D. COST ESTIMATE NARRATIVE:**

FEMA requires a cost estimate narrative that explains all projected expenditures in detail. The cost estimate narrative is intended to mirror the cost estimate spreadsheet and should include a full detailed narrative to support the cost estimates listed in the HMGP Project Cost Estimate Spreadsheet. If your cost estimate includes City, County, or State employees' time (your agency), include personnel titles and salary/hourly wages plus benefits for a total hourly cost. Detailed timesheets must be retained.

Title the document "Cost Estimate Narrative" and include in the budget section of the binder.

**16. FEDERAL/NON-FEDERAL SHARE INFORMATION:**

**A. FUNDING RESTRICTIONS:**

HMGP funding is restricted to a maximum of \$5 million federal share for each project subapplication. FEMA will contribute up to 90 percent of the total project cost. A minimum of 10 percent of the total eligible costs must be provided from a non-federal source. State does not contribute to local cost share.

**For example:** for a \$6,250,000 total project cost, the federal requested share (90 percent) would be \$5,625,000. The non-federal match share (10 percent) provided would be \$625,000.

A jurisdiction may contribute an amount greater than the 10 percent non-federal share.

**For example:** for a \$10,000,000 total project cost, the federal requested share cannot exceed \$5,000,000. Therefore, the non-federal match provided must be \$5,000,000, which exceeds 10 percent of the total cost share. The sum of the non-federal and federal shares must equal the total project cost.

**B. TOTAL PROJECT COST ESTIMATE:**

33,497
--------

Enter total cost formulated on [HMGP Cost Estimate Spreadsheet](#) ENTER \$ IN BOX ABOVE



**VERIFY ALL AMOUNTS ENTERED ARE ACCURATE. INCORRECT AMOUNTS WILL DELAY PROCESSING OF YOUR SUBAPPLICATION.**

<b>FEDERAL SHARE (90% MAXIMUM)</b>	REQUESTED AMOUNT:	30,147
		ENTER \$ IN BOX ABOVE
	PERCENTAGE AMOUNT:	90
		ENTER % IN BOX ABOVE
<b>NON-FEDERAL SHARE (10% MINIMUM)</b>	REQUESTED AMOUNT:	3,350
		ENTER \$ IN BOX ABOVE
	PERCENTAGE AMOUNT:	10
		ENTER % IN BOX ABOVE

**C. NON-FEDERAL MATCH SOURCE: MATCH COMMITMENT LETTER:**

Use the [Local Match Commitment Letter Template](#) to complete this section and add completed letter to the match section of the binder.

- A signed Match Commitment Letter must be provided on agency letterhead.
- The non-federal source of matching funds must be identified by name and type.
- If "other" is selected for funding type, provide a description.
- Provide the date of availability for all matching funds.
- Provide the date of the Funding Match Commitment Letter.
- The funds must be available at the time of submission unless prior approval has been received from NV DEM.
- If there is more than one non-federal funding source, provide the same information for each source on an attached document.
- Match funds must be in support of cost items listed in the cost estimate spreadsheet.
- Requirements for donated contributions can be found in 2 CFR 200.306.

**BENEFIT/COST EFFECTIVENESS INFORMATION**

**17. BENEFIT/COST EFFECTIVENESS INFORMATION**

**A. BCA INSTRUCTIONS:**

FEMA will only consider subapplications from subapplicants that use a FEMA-approved methodology to conduct the Benefit Cost Analysis (BCA). BCA must be legible, complete and well-documented.

- Project BCAs must demonstrate cost-effectiveness through a Benefit Cost Ratio (BCR) of 1.0 or greater.
- Projects with a BCR of less than 1.0 will not be considered for funding.
- Total project cost must be used in the BCA.
- Maintenance of a completed HMGP project is not an eligible reimbursement activity, but must be included in the BCA.

N/A

BCA Version 6.0 is the only software that is allowed for conducting a BCA. Some project types may qualify for pre-calculated benefits. Additional information on the BCA Toolkit is available at: <https://www.fema.gov/benefit-cost-analysis>.

**i** The FEMA BCA Technical Assistance Helpline is available to provide assistance with FEMA’s BCA software by calling 1-855-540-6744 or via email at [BCHelpLine@FEMA.dhs.gov](mailto:BCHelpLine@FEMA.dhs.gov). The FEMA helpline is only to be utilized for technical assistance questions. The FEMA helpline will not verify the accuracy of your BCA.

**B. BCA INFORMATION:**

Once the BCA is completed, enter information requested below.

- 1. **NET PRESENT VALUE OF PROJECT BENEFITS:**
- 2. **TOTAL PROJECT COST ESTIMATE:**
- 3. **BENEFIT COST RATIO:**

**C. ANALYSIS TYPE:**

- FLOOD                       WILDFIRE                       EXEMPT (5% PROJECTS)                       EARTHQUAKE
- HURRICANE WIND                       DROUGHT                       PRE-CALCULATED                       LANDSLIDE
- DAMAGE FREQUENCY ASSESSMENT (DFA)

**D. ANALYSIS DATE (date BCA was conducted):**

**E. PROVIDE BCA ELECTRONIC COPIES IN FORMAT DESCRIBED BELOW:**

N/A

Provide An electronic copy of the report in the BCA section of the binder and all backup documentation for information used in the BCA.

**MAINTENANCE ASSURANCE INFORMATION**

**18. PROJECT MAINTENANCE INFORMATION:**

**A. MAINTENANCE ASSURANCE LETTER:**

- Using the [Project Maintenance Letter Template](#), identify all maintenance activities required to preserve the long-term mitigation effectiveness of the project.
  - Examples of maintenance include: inspection of the project, cleaning and grubbing, trash removal, replacement of worn out parts, etc.
  - Attach a maintenance schedule, estimated annual costs, and a signed maintenance commitment letter for the useful life of the project.

**NATIONAL FLOOD INSURANCE PROGRAM (NFIP)**

**19. NFIP INFORMATION:**

***i* CONTACT YOUR COUNTY OR LOCAL FLOODPLAIN ADMINISTRATOR FOR NFIP INFORMATION.**

**A. NFIP PARTICIPATION:**

1. Is the jurisdiction where the project is located participating in the NFIP? YES  NO 
  - a. If yes, are they in good standing? YES  NO
  - b. If no, explain:

**B. PROJECT LOCATION:**

1. Is this project located in a floodplain or floodway designated on a FEMA Flood Insurance Rate Map (FIRM)? YES  NO 
  - a. Mark the project location on the FIRM and attach to subapplication in the maps section of the binder.
2. Provide the following information for the location of the project:
  - a. FIRM panel number:
  - b. FIRM zone designations:
  - c. NFIP community ID number:

**C. LAST [COMMUNITY ASSISTANCE VISIT \(CAV\)](#) DATE:**

**ENVIRONMENTAL INFORMATION**

**20. ENVIRONMENTAL INFORMATION:**

**A. FEMA ENVIRONMENTAL CHECKLIST:**

## Agenda Item #5b

- ☒ Complete the [FEMA Site Information, Environmental Review, and Checklist](#) and attach to the environmental section of the binder. Provide a detailed response to each question. Attach supporting documentation in compliance with [FEMA's frontloading requirements](#).

# PRINT THIS PAGE – ORIGINAL SIGNATURE IS REQUIRED

## PROJECT CONDITIONS

Indicate by checking each box below that you will adhere to these listed project conditions.

- If during implementation of the project, ground-disturbing activities occur and artifacts or human remains are uncovered, all work will cease and FEMA, NV DEM, and the State Historic Preservation Officer (SHPO) will be notified.
- If deviations from the approved scope of work result in design changes, the need for additional ground disturbance, additional removal of vegetation, or will result in any other unanticipated changes to the physical environment, FEMA will be contacted and a re-evaluation under NEPA and other applicable environmental laws will be conducted.
- If wetlands or waters of the U.S. are encountered during implementation of the project, not previously identified during project review, all work will cease and FEMA will be notified.
- Due to the Federally mandated Environmental and Historic Preservation (EHP) review; no construction will occur for this project prior to FEMA and NV DEM approval.

## AUTHORIZATION

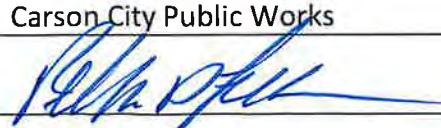
The undersigned does hereby submit this subapplication for financial assistance in accordance with the Federal Emergency Management Agency’s (FEMA) Hazard Mitigation Grant Program (HMGP) and the State Hazard Mitigation Administrative Plan and certifies that the subapplicant (e.g., organization, city, or county) will fulfill all requirements of the program as contained in the program guidelines and that all information contained herein is true and correct to the best of our knowledge.

Subapplicant Authorized Agent

**NAME:** Robert Fellows

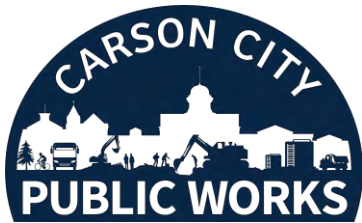
**TITLE:** Chief Stormwater Engineer

**ORGANIZATION:** Carson City Public Works

**SIGNATURE:** 

**DATE:** 04/18/22





## CARSON CITY NEVADA

### Consolidated Municipality and State Capital

## PUBLIC WORKS

### COST-ESTIMATE NARRATIVE

Items numbered 1-11 in the HMGP Cost Estimate Spreadsheet are the necessary parts on the various existing ALERT sites. Items numbered 12-16 are additional parts needed for the installation of the new site. Item 17 is the service for expert installation of the proposed site near the upper Goni watershed. The items are detailed below. The quotation has been provided to show the methodology for the items included on the Cost Estimate Spreadsheet. It is expected that the prices included in the Cost Estimate Spreadsheet will increase as they are only valid for 60 days from the date the quotation was received. Carson City Public Works will supplement additional funds to cover any increases in parts or labor.

#### **Item #1: Temperature Relative Humidity Sensor**

As described by High Sierra Electronics, “the Relative Humidity Temperature Probe was designed for use in complex systems such as weather stations. When combined with a wind speed and direction, solar radiation, and rain sensors you create a complete evapotranspiration weather station. The Relative Humidity Temperature Probes feature low power consumption and fast startup for battery powered applications.

The Relative Humidity Temperature Probes measure relative humidity over the full range of 0 to 100% RH both quickly and accurately. Humidity is measured by the capacitance change of a thin polymer film, inside the Relative Humidity Temperature Probe, as it absorbs or releases moisture. The Relative Humidity Temperature Probes provide long-term stability and are insensitive to dust or industrial pollutants – important features for a probe located in outside ambient conditions. This feature allows you to gather precise relative humidity and temperature data making your other meteorological measurements better.

The Relative Humidity Temperature Probes have temperature compensation, allowing high accuracy to be maintained over a broad temperature operating range. The Relative Humidity Temperature Probe’s temperature measurement range is wide with high accuracy over the entire range. You can use the Relative Humidity Temperature Probes to improve the effectiveness of your smart building automation system.

A waterproof quick disconnect feature allows the Relative Humidity Temperature Probes and their associated electronics to be removed from the cable in a few seconds while in the field. The Relative Humidity Temperature Probes come with 32 ft (9.75 m) of cable with a standard 4-pin MS connector on the end.”

A quantity of five are needed to replace one sensor that was borrowed from the Fire Station #53 Site to install at the Snow Valley Site, to install one at the proposed site near the upper Goni watershed, and to have three spares on hand.

### **Item #2: Radiation Shield**

As described by High Sierra Electronics, “the Solar Radiation Shield protects ambient temperature and relative humidity sensors from direct sunlight and reflected solar radiation. The Solar Radiation Shield actually improves the sampling of air by promoting smooth air flow past the sensor.

Ten white opaque molded plastic discs permit easy air passage through the Solar Radiation Shield while the unique disc profile provides a positive blockage of direct and reflected solar radiation. The Solar Radiation Shield’s thermoplastic disc material is specially formulated for maximum protection in harsh environments. This material provides the Solar Radiation Shield with high reflectivity, low thermal conductivity, and low heat retention.

The sensor is enclosed within the plastic disks of the Solar Radiation Shield. A support arm and mounting hardware is included for easy Solar Radiation Shield field installation and attaches to any vertical pipe up to 2 inches (5.1 cm) in diameter.”

A quantity of four are needed to install one at the proposed site and to have three spares on hand.

### **Item #3: Wind Speed Sensor**

As described by High Sierra Electronics, “the Wind Speed Sensor has proven itself to be rugged, reliable, and highly accurate in wind tunnel and mountain-top tests and in thousands of household and institutional installations.

The Wind Speed Sensor’s low moment of inertia and unique bearings permit very rapid response to gusts and lulls. The Wind Speed Sensor’s black polycarbonate cups (virtually shatter-proof) have thermal properties which let it resist and shed ice far more effectively than metal assemblies. Because of the Wind Speed Sensor’s output linearity, this sensor is ideal for use with various data collection systems used in meteorological monitoring.

The Wind Speed Sensors feature a 3-cup anemometer assembly. Cup wheel rotation produces a sine wave signal with frequency directly proportional to wind speed. This AC signal is induced in a coil by a two pole circular magnet mounted on the Wind Speed Sensor’s cup wheel shaft. Two full cycles are produced for each rotation of the Wind Speed Sensor.

Installation of the Wind Speed Sensor – Model 5711-00 is easily accomplished with the optional Mounting Arm & Hardware available for mounting to a tower or standpipe mast. The Wind Speed Sensor includes 25 ft (7.6 m) of cable”

A quantity of four are needed to install one at the proposed site and to have three spares on hand.

### **Item #4: Wind Direction Sensor**

As described by High Sierra Electronics, “the Wind Direction Sensor is a professional quality sensor which makes it ideal for use in many applications. This Wind Direction Sensor offers a level of quality and reliability often found only in a very high priced unit. The Wind Direction Sensor’s thermoplastic and stainless steel components resist corrosion, and contribute to a high strength-to-weight ratio.

The Wind Direction Sensors employ a minimum number of parts while maximizing functional performance. The Wind Direction Sensor's vane is directly connected to a precision conductive plastic potentiometer located in the main body. An analog voltage output directly proportional to the wind direction is produced by the Wind Direction Sensor when a constant DC excitation voltage is applied to the potentiometer. The Wind Direction Sensor's potentiometer has superior linearity and low rotational friction. Supported by a stainless steel shaft, the Wind Direction Sensor's vane rotates in shielded, instrument-grade, stainless steel bearings.

Installation of the Wind Direction Sensor – Model 5710-00 is easily accomplished with the optional Mounting Arm & Hardware available for mounting to a tower or standpipe mast. The Wind Direction Sensor includes 25 ft (7.6 m) of cable.”

A quantity of four are needed to install one at the proposed site and to have three spares on hand.

#### **Item #5: Wind Sensor Mounting Arm and Hardware**

The Wind Sensor Mounting Arm and Hardware is require for mounting both the wind speed and wind direction sensors on the standpipe mast.

A quantity of four are needed to install one of each at the proposed site and to have three spares on hand.

#### **Item #6: ALERT Data Transmitter**

As described by High Sierra Electronics, “The ALERT/IFLOWS Data Transmitter is a powerful and flexible addition to HSE’s ALERT/IFLOWS family of products designed with the field technician in mind. The ALERT/IFLOWS Data Transmitter is housed in a 17.8 cm (7 inch) diameter aluminum canister for use in ALERT/IFLOWS standpipe applications. Sensor connections to ALERT/IFLOWS Data Transmitters are made via MS connectors.

The ALERT/IFLOWS Data Transmitter’s standard configuration accepts up to 6 Analog inputs (plus internal battery), up to 2 shaft encoders, up to 2 precipitation, SDI-12, wind speed, wind direction, vector wind, peak gust, and road ice. Note: The ALERT/IFLOWS Data Transmitter – Model 3306-02 supports the ALERT2 Protocol.

The ALERT/IFLOWS Data Transmitter’s basic programming mode allows you to configure the unit simply by using rotary switches. Four switches are used to set the ALERT/IFLOWS Data Transmitter’s Station ID number and a fifth is used to select from factory-defined or user-defined preset sensor configurations for different station types. This allows for very quick set-up of the ALERT/IFLOWS Data Transmitter without the need for a laptop computer in the field.

Alternately, you can use the ALERT/IFLOWS Data Transmitter’s Insight Software (a graphical user interface; GUI) for fast, easy set-up from either a desktop or laptop computer in the field. You can program the following parameters independently into the ALERT/IFLOWS Data Transmitter for each sensor to be logged: Sensor name, sensor type, ALERT/IFLOWS ID number, adder(offset) and multiplier, sample interval, reporting (transmission) interval, logging interval, hold off time, and log on transmission. Other sensor specific parameters can be programmed into the ALERT/IFLOWS Data Transmitter for each sensor depending on the type of sensor. Each ALERT/IFLOWS Data Transmitter

enabled sensor can be programmed to transmit on a user Timed-defined basis and/or on a user-defined amount of change, also known as Event Mode. Each ALERT/IFLOWS Data Transmitter enabled sensor can also log data on a user-defined time interval and can also be set to log data on Transmission.

The ALERT/IFLOWS Data Transmitter communicates via ALERT/IFLOWS and SDI-12 Version 1.3 formats. While the ALERT/IFLOWS Data Transmitter is supplied with a VHF or UHF data radio for ALERT/IFLOWS data transmission, other communication devices such as GPRS radio or CDMA (cellular) can utilize the serial port. The ALERT/IFLOWS Data Transmitter reports/transmits based on the reporting interval set for each sensor. There is a minimum 20 second standard hold off time after an initial radio transmission by the ALERT/IFLOWS Data Transmitter before a second radio transmission will occur. The ALERT/IFLOWS Data Transmitter's hold off time may be increased. In addition to the standard hold off the ALERT/IFLOWS Data Transmitter features a low battery hold off that disables radio transmissions when the battery drops below 10.5 V. The ALERT/IFLOWS Data Transmitter will continue data logging even if transmissions stop due to low battery as long as the battery has power to power the transmitter. An override feature allows the ALERT/IFLOWS Data Transmitter to report if the override value has been exceeded even if a transmission is not scheduled. The ALERT/IFLOWS Data Transmitter can also act as an ALERT/IFLOWS repeater. If the ALERT/IFLOWS Data Transmitter's repeater mode is used the extra power consumption required for the receiver must be taken into account with your system design. ALERT/IFLOWS Data Transmitter data is logged on a Secured Data (SD) memory card and can be retrieved via the USB or serial port. The ALERT/IFLOWS Data Transmitter's SD memory card can also be removed for later downloading and replaced with a spare card. The ALERT/IFLOWS Data Transmitter is supplied with a 16 Gigabyte SD card. Sensor data is stored by the ALERT/IFLOWS Data Transmitter in files with one file per sensor, however each file holds one month's worth of data. The file size will depend on how often the ALERT/IFLOWS Data Transmitter has been programmed to record data for that sensor. As an example, a system with five sensors each recording in one-minute intervals would not fill up the 16 GB SD card for 746 years.

The ALERT/IFLOWS Data Transmitter internal firmware is upgradable in the field. When new firmware versions are released for the ALERT/IFLOWS Data Transmitter, they will be posted on our FTP site for clients to download. The ALERT/IFLOWS Data Transmitter firmware versions are downloadable via the USB cable. The ALERT/IFLOWS Data Transmitter firmware download process will take just a few seconds.

Additional ALERT/IFLOWS Data Transmitter features include fuse protection on solar input, battery and 12V switched to avoid damage to the unit through shorting (these fuses automatically reset when they cool off). Reversing the ALERT/IFLOWS Data Transmitter's battery terminals will cause no damage. The ALERT/IFLOWS Data Transmitter offers a dedicated USB port for programming, data retrieval, and uploading of new firmware versions."

A quantity of four are needed to install one at the proposed site and to have three spares on hand.

#### **Item #7: Rain Gauge**

As described by High Sierra Electronics, "the Tipping Bucket Rain Gauge provides state-of-the-art technology for flood warning and rain monitoring applications. The Tipping Bucket Rain Gauges consist of a 12 inch (30.5 cm) diameter housing, a 12 inch (30.5 cm) anodized funnel, a 12 inch (30.5 cm) anodized debris screen, a 4 inch (10.2 cm) stainless steel screen, and tipping bucket mechanism. The Tipping Bucket Rain Gauge mechanism is available in 1 mm or 0.01 inch tip increments. The Tipping Bucket Rain Gauge's mechanism is mounted on an anodized aluminum base section with an integrally

mounted bulls-eye level that uses spring-tensioned adjusters for accurate, set-and-forget operation. The Tipping Bucket Rain Gauges come complete with 25 ft (7.6 m) signal cable and 5 Pin MS connector.

Water is directed into the Tipping Bucket Rain Gauge's mechanism which is adjusted to tip when 1 mm or 0.01 inch of rain is collected. As the Tipping Bucket Rain Gauge's bucket tips, it causes a magnet to pass over a sealed reed switch, closing the switch momentarily. The contact closure is then counted by the Tipping Bucket Rain Gauge's circuitry in your data collection equipment. Measurement accuracy is  $\pm 1.5\%$  at a precipitation rate of 0 to 3.6 inches per hour and  $\pm 3\%$  for above 3.6 inches to 6 inches per hour. Water is discharged through drain holes at the base of the Tipping Bucket Rain Gauge housing. The Tipping Bucket Rain Gauge's drain holes are protected by screens to prevent insect entry.

An optional Tip Rate Compensator (Model 2400-50) can be added to the Tipping Bucket Rain Gauge to provide a typical accuracy specification of 0.5% over any range of rain rates. The compensator mounts directly on the Tipping Bucket Rain Gauge's input connector when used in conjunction with a data transmitter, such as the ALERT/IFLOWS Data Transmitter.

The Tipping Bucket Rain Gauge is designed to fit on a standpipe assembly, but can easily set up with the roof or pole mounting option."

A quantity of four are needed to install one at the proposed site and to have three spares on hand.

#### **Item #8: Battery 12V, 12 Amp Hour**

As described by High Sierra Electronics, "the 12V Rechargeable Batteries set the standard for quality and excellence in rechargeable lead-acid battery technology. These 12V Rechargeable Batteries feature a lead-lead dioxide system with a suspended dilute sulfuric acid electrolyte. Excessive pressure build up due to overcharging is avoided with special one-way valves that allow dry gas to escape from inside the 12V Rechargeable Battery's case.

Each 12V Rechargeable Battery is packaged in a high impact polystyrene case, allowing operation and storage in any position without leakage."

A quantity of eight are needed to install one at the proposed site and to replace batteries at the existing sites that are nearing three years old.

#### **Item #9: Solar Panel**

As described by High Sierra Electronics, "the Solar Panels are used for maintaining a battery charge at sites that include control, telemetry, remote sensing, data collection, and other instrumentation systems. High Sierra Electronics uses photovoltaic and thin film technology for reliable, long-term operation. The Solar Panel modules generate direct current (DC) when exposed to sunlight or other sources of light.

When using photovoltaic Solar Panel technology, single crystal silicon cells are the most efficient. Polycrystalline (or multi-crystalline) cells are slightly less efficient than single crystal cells. Solar Panel efficiency is also affected by cell coverage in the PV module. Square cells can be packed very closely, allowing most of the Solar Panel module surface to generate power. Solar Panel modules made with round cells will have a lower cost, but the space between these cells is effectively wasted space, and

causes the module to have less power output for any given area. Some Solar Panel cells are semi- round and will have an efficiency between round and square cells.

Thin-film modules are less fragile than crystalline modules and use much less silicone, but are about half as efficient as photovoltaic Solar Panel Modules. There is also a shorter solar panel life expectancy for thin-film panels.

Many different solar panels are available in the Series 5300 to best meet your application needs. Each Solar Panel comes complete with mounting brackets, hardware, blocking diode function, and voltage regulator circuits engineered to efficiently charge 12 volt batteries in any climate without overcharging or discharging.

Providing virtually maintenance-free power to maintain batteries, the Solar Panel – Series 5300 offers a durable system design for long outdoor life.

Your Solar Panels should be inspected a least twice a year for overall integrity.”

A quantity of three are needed to install one at the proposed site, replace the undersized panel at the Vice Canyon site, and to have one spare on hand.

#### **Item #10: Solar Voltage Regulator**

As described by High Sierra Electronics, “the Solar Panel Voltage Regulator is intended for float charging of lead acid batteries. The Solar Panel Voltage Regulators are compatible with solar arrays having a current output less than or equal to 3 Amperes. The Solar Panel Voltage Regulators may be used with any size lead-acid battery. Unlike some other regulators, the Solar Panel Voltage Regulator will not damage your battery due to overcharging.

The Solar Panel Voltage Regulator will act as a blocking diode when the battery voltage is greater than the solar array voltage. There will be no reverse current flow. The Solar Panel Voltage Regulator draws no current from the battery.

The Solar Panel Voltage Regulators include a thermal switch which will momentarily interrupt the current flow when dissipating too much heat.

While the Solar Panel Voltage Regulator can be installed outdoors, it is best to choose a mounting position which is protected from direct falling rain and from direct sunlight. This can usually be accomplished by mounting the Solar Panel Voltage Regulator on the backside of the solar panel.”

A quantity of two are needed to have spares on hand.

#### **Item #11: Standpipe Assembly**

As described by High Sierra Electronics, “the Standpipe can easily be installed by one person in 3 to 4 hours (depending on soil conditions). Typical Standpipe installations call for a round hole 2 ft (0.6 m) deep with a 2 ft (0.6 m) diameter. The standpipe is placed in the hole and secured in place with concrete.

The Standpipe is a good example of our goal to design equipment that provides long-lasting and reliable function while keeping installation, operation, and maintenance as quick and easy as possible. The current weatherproof Standpipe design is based on years of field experience of our engineers and technicians, and feedback from dozens of our client's field technicians and system operators.

The standpipe includes a locking, quick disconnect top that can be attached or removed in seconds for easy top section connection. Three studs at the base of the top section drop into L shaped slots at the top of the standpipe and when the top section is rotated, it is secured into place. Then with the turn and removal of your key, your top section is secured from others removing it. Don't worry about dropping a screw or wrench, a missing nut, or cross threading.

The 10 ft (3 m) steel mast provides much greater strength than an aluminum mast. This is particularly significant when a directional antenna is used in areas that experience high winds. The mast is attached by U-bolts to two brackets welded to the side of the standpipe, and the connection and cable entry are protected by a mast base cover. With the mast resting on the ground, the U-bolts can be put in place and tightened most of the way before being raised into position and tightened. This also allows readjustment of a directional antenna without the need to lower the mast. Installation and maintenance are easily accomplished by one person.

An optional access door with key lock can be purchased with or added to an existing standpipe to decrease maintenance time. The standard door is positioned 3.25 ft (0.99 m) below the top of the standpipe. The standpipe door opening is 22 inches (55.9 cm) high and 10 inches (25.4 cm) wide. This places the bottom of the door approximately 2.75 ft (0.84 m) above the ground after a typical installation of a standard 10 ft (3 m) standpipe. You can request that the standpipe door's location be moved if needed for your application."

A quantity of one is needed to install at the proposed site.

#### **Item #12: Antenna**

As described by High Sierra, "the High Gain Directional Antenna is a heavy duty point-to-point Yagi antenna commonly used in data transmission and control station applications. The High Gain Directional Antennas feature a frequency range of 166 to 174MHz, a pre-set Reddi match feed system, and can be quickly and easily assembled at the installation site. Precisely machined boom-to-element blocks prevent corrosion and noise buildup on the High Gain Directional Antenna.

The High Gain Directional Antennas are designed to be rear mounted and can be stacked for additional gain by using a coaxial stacking kit. The High Gain Directional Antennas come pre-tuned and includes all stainless steel hardware for optimum performance and mechanical integrity. The High Gain Directional Antennas are designed for mounting on up to 4 inch (10.2 cm) O.D. masts."

A quantity of one is needed to install at the proposed site.



**Item #13: Antenna Cable**

The Antenna Cable (RG58) is necessary for use with Item #12. The set includes a 12 ft RG58 Cable with (M) PL-259 and (M) N-Type Connectors, and a 10.8 ft RG58 Cable with (M) BNC and (M) N-Type Connectors.

A quantity of one is needed to install at the proposed site.

**Item #14: 15 PSI Pressure Transducer**

As described by High Sierra Electronics, “the Submersible Pressure Transducer provides high accuracy over a wide range of operating conditions, making it ideally suited to environmental monitoring applications such as surface water, streams, and reservoirs.

The Submersible Pressure Transducers are built in the USA and feature a compensated temperature range of 14° to 178° F (-10° to 80° C), a durable stainless steel housing (titanium optional for severe applications, Model 6642-00), and a dual output (analog & RS-485). RS-485 permits you to calibrate your Submersible Pressure Transducers in the field.

The Submersible Pressure Transducers analog output is programmed at the factory for the desired measurement range. The Submersible Pressure Transducers are programmed via an Interface Converter, Model 6640-15, with a USB to RS-485 output. It is recommended that each technician with responsibility for maintaining sites equipped with a Submersible Pressure Transducer – 664X Series have a Model 6640-15 in their toolkit. The 6640-15 allows the technician to set zero and span/range settings for the Submersible Pressure Transducer.

An optional Submersible Pressure Transducer pressure calibrator, Model 5528, is also recommended for maintaining your sensors. This is a highly precise digital manometer with an integrated Max/Min function for calibrating and testing submersible pressure transducers.”

A quantity of one is needed to install at the proposed site.

**Item #15: Additional Submersible Cable for PTs**

This item is an additional 100 feet of submersible cable for the installation at the proposed site.

**Items #16: Conduit and Fittings**

This item consists of conduit and fittings that may be needed for the installation of the proposed site.

**Item #17: Installation Service**

Installation service includes the installation service quoted at \$5,920 for the proposed site near the upper Goni watershed. For the proposed site, the technician will install the site with all necessary start-up equipment including standpipe, concrete, and conduit and will ensure it functions with the existing system.



## HMGP Cost Estimate Spreadsheet

DATE	JURISDICTION NAME	DISASTER & PROJECT OR PLANNING #	PROJECT OR PLANNING TITLE		
2/2/2022	Carson City Public Works	DR-4523-NV	Carson City ALERT Sites		
#	Item Name	Unit Quantity	Unit of Measure	Unit Cost	Cost Estimate Total
1	Temperature Relative Humidity Sensor (Vaisla HMP110); Includes: 0-1 V Output and 32 ft Signal Cable with 4-pin MS Connector. Model 5728-00	5	EA	\$ 841.00	\$ 4,205.00
2	Radiation Shield; Includes: 10 Plate Solar Radiation Shield, and Mounting Hardware	4	EA	\$ 211.00	\$ 844.00
3	Wind Speed Sensor; Includes: 25 ft Signal Cable with MS Connector.	4	EA	\$ 296.00	\$ 1,184.00
4	Wind Direction Sensor; Includes: 25 ft Signal Cable with MS Connector.	4	EA	\$ 500.00	\$ 2,000.00
5	Wind Sensor Mounting Arm and Hardware for Model 5711-00 and 5710-00	4	EA	\$ 126.00	\$ 504.00
6	ALERT Data Transmitter with Analog, Digital and SDI-12 Inputs, Data Logging on 16 GB Flash Memory Card. Includes VHF 148-174 MHz Radio, 12V 12 Amp Hour Battery, and Aluminum Canister (7x18.5). (Specify Radio Frequency)	4	EA	\$ 2,500.00	\$ 10,000.00
7	Rain Gauge, 12 inch (Cal: 1mmTip); Includes; Tipping Bucket Mechanism, Twist-Lock Standpipe Mount Top Section with 25 ft Cable.	4	EA	\$ 882.00	\$ 3,528.00
8	Battery; 12 V, 12 Amp Hour	8	EA	\$ 79.00	\$ 632.00
9	Solar Panel (100mA 16.5 V): Includes: 13.7 V Output Voltage Regulator, 12 ft Power Cable with 3-pin MS Connector, Mounting Bracket, and Hardware	3	EA	\$ 221.00	\$ 663.00
10	Solar Voltage Regulator (ProTech); 13.7 V, 3 Amp.	2	EA	\$ 50.00	\$ 100.00
11	Standpipe Assembly, 6' to 10' with Mounting Bracket for Installations against Walls, Door and Key Lock, Model 7110-00 Omni Antenna, Model 7150-00 Antenna Cable Assembly, 10' Antenna Mast and Cover, Slotted Rain Gauge Mount, and 14' Pull Rope	1	EA	\$ 1,650.00	\$ 1,650.00
12	Antenna (Yagi) with VHF 7.1 dB Directional High Gain, 138 to 174 MHz. (ASP 816) Specify Frequency	1	EA	\$ 349.00	\$ 349.00
13	Antenna Cable (RG58); Includes: 12 ft RG58 Cable with (M) PL-259 and (M) N-Type Connectors, 10.8 ft RG58 Cable with (M) BNC and (M) N-Type Connectors. Use for Model 71007110 with existing Lightning Protection	1	EA	\$ 79.00	\$ 79.00
14	15 PSI Pressure Transducer with 0-5V Output. Submersible Cable, Desiccant Box (6x6x4), Signal Conditioning Module, and 12ft Signal Cable	1	EA	\$ 1,116.00	\$ 1,116.00
15	Additional Submersible Cable for PTs	100	LF	\$ 2.63	\$ 263.00
16	Conduit and Fittings	1	EA	\$ 460.00	\$ 460.00
17	Installation Service	1	EA	\$ 5,920.00	\$ 5,920.00
<b>Total Project Cost Estimate:</b>				<b>\$</b>	<b>33,497.00</b>

## **Carson City Water Resource Recovery Facility Flood Protection Project Scope of Work**

The Carson City Water Resource Recovery Facility (WRRF) lies adjacent to Lower King's Canyon Creek causing various areas of the treatment facility to be potentially impacted by the 100-year and 500-year flood events (refer to Vicinity and Flood Map). Flooding of the facility could cause severe impacts to health and safety including potential for overflows of untreated wastewater or backup in sewer pipelines due to interruptions in pump station operation. Significant flood damage would also result in a disruption of service for more than 20,000 service connections. The total site replacement cost (structures and content) was estimated at approximately \$70M. Damage costs for a 100-year and 500-year flood event were estimated at \$2.3M and \$5M respectively (see BCA calculations).

In 2011, a masonry floodwall was installed along the western side of the WRRF along Airport Road and earthen berms were constructed along the northern and southern boundaries of the facility to provide flood protection for the 100-year event.

By extending the masonry floodwall approximately 1,300 feet to the east along the northern side of the facility adjacent to Lower King's Canyon Creek, installing a flood curtain across the driveway off Airport Road, as well as extending the floodwall approximately 500 feet to the east on the south side of the facility, the WRRF would be dry flood-proofed for the 500-year event. Dry flood-proofing the facility would prevent flood waters up to the 500-year event from entering the facility and disrupting operations.

The scope of work includes project management, quality control, finalizing design plans and environmental clearances, hydraulic analysis, topographic survey, completing a Conditional Letter of Map Revision (CLOMR) with FEMA, post design services, demolition of the existing fence, construction of the wall, as-built survey, and completing a Letter of Map Revision with FEMA upon construction completion. The scope of work also includes applicable public notice to include notification of the project to the Carson City Board of Supervisors and the public. The project is proposed as a Phased Project with final design and permitting first followed by construction.

The WRRF Flood Protection project will be managed by Carson City Public Works staff. It is anticipated that Robb Fellows, Chief Stormwater Engineer for Carson City Public Works will serve as Project Manager. In addition, Carson City will hire an engineering consultant and contractor to complete the project tasks described in this scope of work section.

Maintenance will be performed by Carson City Public Works. The wall will be inspected once a year and after any significant rainfall event that impacts the wall. Maintenance will consist of excess vegetation and sediment removal along the base of wall, repairing any erosion that may impact the wall footing, and cleaning and resealing the wall every five years to ensure flood proofing. The cost of maintenance is estimated to be approximately \$15,000 annually. This cost was included in the BCA.

Upon signing an award agreement project tasks will be completed as follows:

### **Design Phase**

Kickoff Meeting – The project will be initiated with a kickoff meeting to include Carson City, the design team, and FEMA. The kickoff meeting will review the scope of work, schedule, workflow, and project expectations.

## Agenda Item #5c

Boundary and Topographic Survey – Field survey will be conducted define the project boundary and existing topography prior to design.

Utility Base Map/Data Collection – Existing utilities will be mapped by acquiring Blue Stake, as-builts, and GIS data. This information will be included on the design plans.

Geotechnical Analysis – A geotechnical survey will be conducted to establish design parameters for the wall and wall footings.

Existing and Proposed Conditions Hydrology and Hydraulic Analysis – The project site will be modeled in FEMA accepted H&H software in both the existing and proposed (with wall) scenarios. This analysis will be used to refine the wall design and to determine impacts up- and downstream.

Public Meeting – A public meeting will be conducted to inform residents and elected official about the project and to receive input on design aesthetics.

Civil Design – Construction documents to include plans, special provisions, and engineers estimate of probable cost will be prepared and submitted for review at 30%, 60%, 95%, and final. Final construction documents for the floodwall will be used to solicit contractor bids.

SWPPP – A Stormwater Pollution Prevention Plan will be developed to prevent illicit discharges into adjacent water bodies and for the contractor to reference and update through construction.

Environmental Permitting – All required environmental clearances and permits will be obtained during the design phase and prior to construction. Environmental clearances are anticipated to be minor since the project will occur within the boundaries of the existing treatment plant facilities. ESA compliance for the CLOMR will be required.

FEMA CLOMR – During the design phase, a CLOMR will be processed with FEMA to ensure the design meets all NFIP requirements.

### **Construction Phase**

Mobilization – Upon bid award, construction will begin with mobilization of required equipment.

Construction Removals – Construction removals are anticipated to consist of removal of the existing chain link fence.

Wall Construction – The floodwall and flood proof gate (flood curtain) constitute the main construction items. Any disturbed vegetation will be replaced before construction is final.

Demobilization – Upon completion of wall construction, contractor will demobilize equipment.

As-Built Survey – Upon completion of construction, an as-built survey will be conducted for record drawings and LOMR application.

FEMA LOMR – Upon completion of construction and as-built survey, a LOMR will be processed with FEMA to revise the DFIRM.

Closeout – The final task for the project will be construction and grant closeout.

# HAZARD MITIGATION GRANT PROGRAM PROJECT SUBAPPLICATION

**NOTE:** Please click within the greyed section to begin typing in each section of the application.

<b>DISASTER NUMBER:</b>	DR-4523-NV
<b>JURISDICTION NAME:</b>	Carson City Public Works
<b>PROJECT TITLE:</b>	Carson City Water Resource Recovery Facility Flood Protection
<b>PROJECT NUMBER:</b>	

PROJECT NUMBER IS THE CONTROL NUMBER RECEIVED AT TIME OF SUCCESSFUL NOI SUBMITTAL



**Subapplications are due postmarked to NV DEM by:**

**DR-4523-NV: ASAP  
Deadline: July 15, 2022**

## HAZARD MITIGATION GRANT PROGRAM (HMGP)

### INTRODUCTION

#### INTRODUCTION

As a result of the declaration of a major federal disaster or aggregate Fire Management Assistance declarations, the State of Nevada is eligible for HMGP funding. The State has established priorities to accept project subapplications from subapplicants statewide, state agencies, tribal governments, local governments, and Private Non-Profits.

Hazard mitigation activities are aimed at reducing or eliminating future damages. Activities include cost effective hazard mitigation projects and hazard mitigation plans approvable by the Federal Emergency Management Agency (FEMA).

Nevada's Enhanced State Hazard Mitigation Plan (ESHMP) accreditation resulted in additional dollars available for local agencies' hazard mitigation plan and project funding for Hazard Mitigation Grant Program (HMGP). In order to maintain ESHMP status, further information is requested by FEMA. This information is requested as a means of assessing the pro-activity of your community or agency.

#### PUBLIC ASSISTANCE

If your project is aimed at repairing a damaged facility resulting from a federally declared disaster, contact the Public Assistance (PA) Program at [disaster-recovery@dps.state.nv.us](mailto:disaster-recovery@dps.state.nv.us). HMGP does not fund repairs for damages that result after a disaster.

#### TIME EXTENSIONS

Time extensions may be requested, and will be approved or denied on a case-by-case basis. To request additional time to submit a subapplication, send an email to the [mitigation@dps.state.nv.us](mailto:mitigation@dps.state.nv.us) mailbox. The subject line must include: "Subapplication Time Extension Request (include Disaster Number and Project Control Number)". The body of the message must include justification and specific details supporting why more time is needed and how much additional time is requested.

#### QUESTIONS

Submit all HMGP subapplication questions to the following mailbox: [jwoodward@dps.state.nv.us](mailto:jwoodward@dps.state.nv.us)

## HAZARD MITIGATION GRANT PROGRAM REGULATIONS

### REGULATIONS

Federal funding is provided under the authority of the [Robert T. Stafford Emergency Assistance and Disaster Relief Act \(Stafford Act\)](#) through FEMA and the Nevada Division of Emergency Management (NV DEM). NV DEM is responsible for identifying program priorities, reviewing subapplications and forwarding recommendations for funding to FEMA. FEMA has final approval for activity eligibility and funding.

The federal regulations governing HMGP are found in Title 44 of the Code of Federal Regulations (44CFR), Part 201 (Planning) and Part 206 (Projects) and in Title 2 of the Code of Federal Regulations (2CFR), Part 200 (Uniform Administrative Requirements).

The FEMA regulations that establish the agency-specific process for implementing NEPA are set forth in 44 CFR Part 10. FEMA will lead the NEPA clearance process.

### FEMA GUIDANCE

FEMA requires that all projects adhere to the [Hazard Mitigation Assistance Unified Guidance 2015](#).

## HAZARD MITIGATION GRANT PROGRAM ELIGIBILITY CHECKLIST

Before completing the subapplication, review the following HMGP eligibility checklist to ensure project meets the requirements for HMGP funding.

- Construction/Ground Breaking:** No construction or ground breaking activities are allowed prior to FEMA approval. HMGP does not fund projects that are in progress or projects that have already been completed.
- Scope of Work:** The project scope of work (SOW) must be consistent with the SOW provided in the approved Notice of Interest (NOI).
- Benefit Cost Analysis:** FEMA Benefit Cost Analysis (BCA) Toolkit Version 6.0 must be used to conduct the BCA. FEMA will only consider subapplications that use a FEMA-approved BCA methodology. Documentation to support all BCA calculations must be included in subapplication. Projects with a benefit cost ratio (BCR) of less than 1.0 will not be considered. BCA will be verified by FEMA and NV DEM upon subapplication submittal. 5% Initiative Projects do not need a BCA. Planning grants do not need a BCA.
- Subapplicant Eligibility:** Subapplicant must be an eligible State Agency, Local Government (City, County, Special Districts), Federally Recognized Tribe or Private Nonprofit (PNP) Organization. PNP is defined as private nonprofit educational, utility, emergency, medical, or custodial care facility, facilities providing essential governmental services to the general public and such facilities on Indian reservations (see 44 CFR Sections 206.221(e) and 206.434(a)(2)).
- LHMP/MJHMP:** Subapplicant must have a FEMA approved and adopted Local or Multi Jurisdictional Hazard Mitigation Plan (LHMP or MJHMP) to be eligible for HMGP funding. If a jurisdiction has its own governing body, jurisdiction must be covered under its own plan. LHMP's/MJHMP's expire five years after FEMA approval. Failure to update plan before expiration date may cause project deobligation.
- Cost Share:** Local funding match of 25% of the total project cost is required by the subapplicant. HMGP matching funds must be from a non-federal source. State does not contribute to local funding match.
- Period of Performance:** Projects must be completed (including close-out) within the 36 month Period of Performance (POP). POP begins upon FEMA approval of the subapplication.

**HAZARD MITIGATION GRANT PROGRAM  
ELIGIBILITY CHECKLIST  
(continued)**

- Complete Subapplication:** Failure to include all required documentation will delay the processing of your subapplication and may result in denial of project. The SOW, cost estimate, cost estimate narrative, work schedule and BCA must accurately mirror each other to be considered for funding. The budget narrative must include a detailed description of every cost estimate line-item, including the methodology used to estimate each cost.
- Regulations:** Subapplications that are inconsistent with state and federal HMGP regulations, or do not meet eligibility criteria will not be considered.
- Duplication of Programs:** HMGP funding cannot be used as a substitute or replacement to fund activities or programs that are available under other federal authorities, known as Duplication of Programs (DOP).
- Time Extensions:** Unless a time extension has been approved before the deadline, subapplications must be postmarked by the applicable deadline to be considered for funding.



**SUBAPPLICANT MUST BE ABLE TO CHECK EVERY BOX TO QUALIFY FOR HMGP FUNDING.**



## SUBAPPLICATION FORMAT INSTRUCTIONS

NV DEM requires the following format to be used for all HMGP subapplications.

### COMPLETE SUBAPPLICATION PACKAGE CONSISTS OF THE FOLLOWING:

**Electronic Version of the completed application**

- Table of Contents
- All electronic attachments must be clearly titled

**Send electronic version to NV DEM either by Thumb Drive or by DropBox or Microsoft Word 365 Zip function.**

- Attachments must be in one of the following formats: Microsoft Word Version 2007 (or newer), Microsoft Excel or Adobe PDF
- Benefit Cost Analysis (BCA) 6.0 must be included
- All electronic attachments must be clearly titled

### ORGANIZATION OF THE BINDER SECTIONS MUST BE TABBED IN THE FOLLOWING FORMAT:

0. Table of Contents
1. Subapplication
2. Scope of Work
3. Designs
4. Studies
5. Maps
6. Photos
7. Schedule (Additional documentation work schedule components, Gantt chart, etc.)
8. Budget ([HMGP Cost Estimate Spreadsheet](#) and cost estimate narrative)
9. Match ([Local Match Commitment Letter Template](#))
10. BCA Report ([BCA Version 6.0](#) report and BCA supporting documentation)
11. Maintenance ([Project Maintenance Letter Template](#))
12. Environmental ([FEMA's Site Information, Environmental Review and Checklist](#) and all other environmental documentation)
13. Supporting Docs (Any extra supporting documentation)

### MAIL OR DELIVER COMPLETED SUBAPPLICATIONS TO:

Nevada Division of Emergency Management  
Attention: Hazard Mitigation  
2478 Fairview Dr.  
Carson City, NV 89701

## PROJECT SUBAPPLICATION FORM

### SUBAPPLICANT INFORMATION

**1. SUBAPPLICANT:**   
NAME OF STATE AGENCY, TRIBAL GOVERNMENT, LOCAL GOVERNMENT, PRIVATE NON-PROFIT OR SPECIAL DISTRICT APPLYING FOR FUNDING

**2. TYPE:**                      STATE/LOCAL GOVERNMENT                          TRIBAL GOVERNMENT                          PRIVATE NON-PROFIT                          SPECIAL DISTRICT   

**3. FIPS #:**                                            IF YOU DO NOT KNOW YOUR FEDERAL IDENTIFICATION PROCESSING SYSTEM NUMBER (FIPS #), REQUEST BY EMAILING [mitigation@dps.state.nv.us](mailto:mitigation@dps.state.nv.us)

**4. DUNS #:**                                            IF YOU DO NOT KNOW YOUR DATA UNIVERSAL NUMBERING SYSTEM (DUNS) #, CALL DUN & BRADSTREET (D&B) @ 1-866-705-5711 FOR INFORMATION

**5. COUNTY:**                                            THE NAME OF THE COUNTY WHERE THE PROPOSED PROJECT IS LOCATED

**6. POLITICAL DISTRICT NUMBERS:**

CONGRESSIONAL:	2	<small>PROVIDE ONLY THE NUMBERS OF THE POLITICAL DISTRICTS FOR THE SUBAPPLICANT</small>
STATE ASSEMBLY:	16	
STATE LEGISLATIVE:	40	

**7. PRIMARY CONTACT:**  
POINT OF CONTACT FOR YOUR PROJECT. NEVADA DEM WILL CONTACT THIS PERSON FOR QUESTIONS AND/OR REQUESTS FOR INFORMATION

**NAME:**                       Mr.     Ms.    **FIRST:**     **LAST:**

**TITLE:**                     

**ORGANIZATION:**                     

**ADDRESS:**                     

**CITY:**                          **STATE:**     **ZIP CODE:**

**TELEPHONE:**                          **FAX:**

**EMAIL:**                     

**8. ALTERNATIVE CONTACT:**  
BACK-UP POINT OF CONTACT FOR YOUR PROJECT. NEVADA DEM WILL CONTACT THIS PERSON IF PRIMARY CONTACT IS UNAVAILABLE

**NAME:**                       Mr.     Ms.    **FIRST:**     **LAST:**

**TITLE:**                     

**ORGANIZATION:**                     

**ADDRESS:**                     

**CITY:**                          **STATE:**     **ZIP CODE:**

**TELEPHONE:**                          **FAX:**

**EMAIL:**

**LOCAL HAZARD MITIGATION PLAN INFORMATION**

**9. LOCAL HAZARD MITIGATION PLAN (LHMP) REQUIREMENT:**

- i** A FEMA approved and locally adopted LHMP is required to receive federal funding for all project subapplication activities. Subapplicants for HMGP funding must have a FEMA-approved Mitigation Plan in place at the time of sub-award. Subapplication will be reviewed to ensure that the proposed activity is in conformance with subapplicant’s plan.

For State agencies, please use the currently approved Enhanced State Hazard Mitigation Plan.

**A. NAME/TITLE OF YOUR LHMP:** Carson City Hazard Mitigation Plan July 14, 2021

<p><b>B. LOCAL SINGLE JURISDICTIONAL MULTHAZARD MITIGATION PLAN:</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">DATE SUBMITTED TO NV DEM:</td> <td style="width: 30%;">7/1/2021</td> </tr> <tr> <td>DATE APPROVED BY FEMA:</td> <td>8/18/2021</td> </tr> <tr> <td>DATE ADOPTED BY LOCAL AGENCY:</td> <td>9/16/2021</td> </tr> </table>	DATE SUBMITTED TO NV DEM:	7/1/2021	DATE APPROVED BY FEMA:	8/18/2021	DATE ADOPTED BY LOCAL AGENCY:	9/16/2021	<b>OR</b>	<p><b>LOCAL MULTI JURISDICTIONAL MULTHAZARD MITIGATION PLAN:</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">DATE SUBMITTED TO NV DEM:</td> <td style="width: 30%;"></td> </tr> <tr> <td>DATE APPROVED BY FEMA:</td> <td></td> </tr> <tr> <td>DATE ADOPTED BY LOCAL AGENCY:</td> <td></td> </tr> <tr> <td>LEAD AGENCY:</td> <td><span style="border: 1px solid black; display: inline-block; width: 100%; height: 15px;"></span></td> </tr> </table>	DATE SUBMITTED TO NV DEM:		DATE APPROVED BY FEMA:		DATE ADOPTED BY LOCAL AGENCY:		LEAD AGENCY:	<span style="border: 1px solid black; display: inline-block; width: 100%; height: 15px;"></span>
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LEAD AGENCY:	<span style="border: 1px solid black; display: inline-block; width: 100%; height: 15px;"></span>															

**C. IF YOUR PROJECT IS REFERENCED IN YOUR LHMP, INDICATE WHERE THE PROPOSED PROJECT CAN BE FOUND; USE N/A FOR NOT APPLICABLE BOXES:**

CHAPTER	PART	SECTION	PAGE
N/A	N/A	8	8-19



**DO NOT INCLUDE A COPY OF YOUR PLAN WITH SUBAPPLICATION.**

**D. PROVIDE A SHORT NARRATIVE DETAILING HOW YOUR PROJECT ALIGNS WITH THE RISK AND HAZARD ASSESSMENTS, STRATEGIES, GOALS AND/OR OBJECTIVES OF YOUR PLAN:**

Per Goal #5.1-e of the Carson City Hazard Mitigation Plan 2021, this project will protect the existing municipal Water Resource Recovery Facility. The proposed project will allow the City to provide protection for the Water Resource Recovery Facility from the 500-year flood event. This facility is utilized for wastewater reclamation, including treating domestic and industrial wastewater for secondary effluent reuse.

**COMMUNITY INFORMATION**

**10. COMMUNITY PARTICIPATION:**

**A. CHECK BOX(ES) IF YOUR COMMUNITY PARTICIPATES IN ANY OF THE FACTORS BELOW:**

Select a column appropriate to your type of project. Acronyms include: Community Wildfire Protection Plan (CWPP), Community Rating System (CRS) Plan and Unreinforced Masonry (URM) Participation.

<b>FIRE</b>	<b>FLOOD</b>	<b>EARTHQUAKE</b>
<input type="checkbox"/> CWPP, FIRE WIRE, FIRE SAFE	<input checked="" type="checkbox"/> CRS PLAN	<input type="checkbox"/> SHAKEOUT DRILL PARTICIPATION

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CURRENT CEQA ACTIVITY  
 DEFENSIBLE SPACE

CURRENT CEQA ACTIVITY  
 HYDROLOGY STUDY

URM PARTICIPATION

**B. PROVIDE A NARRATIVE DESCRIPTION OF ALL OF FACTORS SELECTED FROM LIST ABOVE:**

Carson City participates in the National Flood Insurance Program (NFIP) Community Rating System (CRS). The City received a Class 6 rating in the last Community Assistance Visit (CAV) in 2018. Carson City also participates in hydrology studies to restudy areas throughout the City that are warranted.

**C. IS YOUR JURISDICTION REQUIRED TO PROVIDE PUBLIC NOTICE OF THIS PROJECT?**

Yes  No If yes, provide details:

The local governing body of Carson City, the Carson City Board of Supervisors (BOS) provided approval at a public meeting for the Chief Stormwater Engineer to submit this project to NV DEM for potential funding. If the City is successful in obtaining funding, the BOS will be notified via a public meeting.

**PROJECT INFORMATION**

**11. PROJECT TITLE:** Carson City Water Resource Recovery Facility Flood Protection

MUST USE THE SAME PROJECT TITLE ORIGINALLY USED IN THE APPROVED NOTICE OF INTEREST (NOI). IF YOU NEED TO CHANGE YOUR PROJECT TITLE, CONTACT NV DEM at [mitigation@dps.state.nv.us](mailto:mitigation@dps.state.nv.us)

**12. PROJECT LOCATION:**

**A. IDENTIFY THE COUNTY/COUNTIES WHERE THE ACTIVITY WILL OCCUR:**

Carson City – Independent City

**B. LATITUDE/LONGITUDE COORDINATES:**

FEMA requires that all projects be geo-coded using latitude and longitude (lat/long) using NAD-83 or WGS-84 datum. The lat/long coordinates must be expressed in degrees including five or more decimal places (e.g., latitude 36.999221, longitude -109.044883).

LATITUDE
39.16242 N

LONGITUDE
119.73060 W



**IF THERE ARE MORE THAN ONE SET OF LAT/LONG COORDINATES, PROVIDE ON SEPARATE DOCUMENT AND ADD TO MAP SECTION OF BINDER.**

**C. STRUCTURE COORDINATES:**

- For projects that protect buildings or other facilities, provide coordinates for each structure at either the front door of the structure or the intersection of the public road and driveway that is used to access the property.
- For large activity areas, such as detention basins or vegetation management projects, the location must be described by three or more coordinates that identify the boundaries of the project.
- The polygon created by connecting the coordinates must encompass the entire project area.

Intersection of Airport Road and driveway: 39.16350 N, 119.73280 W

**D. STAGING AREA:**

Describe the project staging area. This is the area where the project equipment, materials and/or debris will be staged. Include a vicinity map with the proposed staging area(s) in the map section of the binder.

Within the Water Resource Recovery Facility located south of the Carson City Public Works yard on Butti Wy., north of E. 5<sup>th</sup> St., east of Airport Rd. and west of Fairview Dr., there is a vacant area where dewatering occurs. This area will be used for staging project equipment, materials, and debris (if necessary).



**AERIAL MAP(S) OF STAGING AREA(S) MUST BE INCLUDED IN SUBAPPLICATION.**

**E. SITE PHOTOS:**

A minimum of three ground photos per project site are required. Include in photo section of the binder.

**F. MAPPING REQUIREMENTS:**

Provide the following mapping elements in the map section of the binder:

- If project area has been mapped using GIS software, include the completed Shapefiles in electronic versions of full application. **N/A**
- Include a vicinity map of the general area showing major roads. Aerial photographs may be used as vicinity maps.
- Prominently mark the project location on the vicinity map.
- Provide a detailed project map that clearly identifies the project boundaries.
- Project map must show all lat/long coordinates provided in the project description.
- Vicinity map and the project map must both have a north arrow and scale.



**SEND ONLY ELECTRONIC VERSIONS OF MAPS.**

**G. PUBLIC ASSISTANCE (PA) PROGRAM FUNDING:**

List any Public Assistance Disaster Survey Reports (DSR) or Project Worksheets (PWs) that were completed at the project location from previous disasters. List all current engagement with PA for this current disaster and include date(s) if known:

N/A

**H. DEED RESTRICTIONS THAT LIMIT FEDERAL FUNDING:**

Is there a deed restriction or permanent conservation easement on the property at the project site that would prohibit federal disaster funding (e.g., a previously FEMA funded acquisition of a structure on this property)? If yes, describe in detail.

No deed restrictions or permanent conservation easement on the property.

**13. PROJECT DESCRIPTION:**

**A. APPLICATION TYPE:**

Project  5% Activity

*5% activities are defined as mitigation actions that are consistent with your local hazard mitigation plan and meet all HMGP requirements, but may be difficult to conduct a standard BCA*

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to prove cost-effectiveness. Examples: early earthquake warning system, back-up generators for critical facilities, public awareness campaign, mitigation specific community outreach activities.

**B. PROJECT TYPE:**

Select at least one project type; select as many as needed to accurately describe project.

<input type="checkbox"/> EARTHQUAKE	<input type="checkbox"/> FIRE	<input checked="" type="checkbox"/> FLOOD	<input type="checkbox"/> OTHER
<input type="checkbox"/> CODE ENFORCEMENT	<input type="checkbox"/> DEFENSIBLE SPACE	<input type="checkbox"/> ACQUISITION	<input type="checkbox"/> CRITICAL FACILITY GENERATOR(S)
<input type="checkbox"/> NON-STRUCTURAL	<input type="checkbox"/> FIRE RESISTANT BUILDING MATERIALS	<input checked="" type="checkbox"/> DRY FLOOD PROOFING	<input type="checkbox"/> DROUGHT <input type="checkbox"/> TSUNAMI
<input type="checkbox"/> STRUCTURAL	<input type="checkbox"/> FIRE VEGETATION MANAGEMENT	<input checked="" type="checkbox"/> FLOOD CONTROL	<input type="checkbox"/> WIND
<input type="checkbox"/> NON-STRUCTURAL & STRUCTURAL	<input type="checkbox"/> SOIL STABILIZATION	<input checked="" type="checkbox"/> ELEVATION	<input type="checkbox"/> OTHER: <input style="width: 100px; height: 20px;" type="text"/>
<input type="checkbox"/> <a href="#">CLIMATE RESILIENCY MITIGATION ACTION</a> (CRMA): Projects that mitigate risk through restoration of the natural environment			

**C. DESCRIBE PROBLEM/HAZARDS/RISKS:**

Describe the problem this project is attempting to solve and the expected outcome. Describe the hazards and risks to life, safety and any improvements to property in the project area for at least the last 25 years. Describe in detail how the project reduces hazard effects and risks.

The Carson City Water Resource Recovery Facility (WRRF) lies adjacent to the Lower King’s Canyon Creek Drainage Area causing various areas of the treatment facility to be potentially impacted by the 100-year and 500-year flood events (refer to Project Map). Flooding of the facility could cause severe impacts to health and safety including potential for overflows of untreated wastewater or backup in sewer pipelines due to interruptions in pump station operation. Significant flood damage would also result in a disruption of service for more than 20,000 service connections. The total site replacement cost (structures and content) was estimated at approximately \$70M. Damage costs for a 100-year and 500-year flood event were estimated at \$2.3M and \$5M respectively (see BCA calculations).

In 2011, a masonry floodwall was installed along the western side of the WRRF along Airport Road and earthen berms were constructed along the northern and southern boundaries of the facility to provide flood protection for the 100-year event.

By extending the masonry floodwall approximately 1,300 feet to the east along the northern side of the facility adjacent to Lower King’s Canyon Creek, installing a flood curtain across the driveway off Airport Road, as well as extending the floodwall approximately 500 feet to the east on the south side of the facility, the WRRF would be dry flood-proofed for the 500-year event. Dry flood-proofing the facility would prevent flood waters up to the 500-year event from entering the facility and disrupting operations.

**D. DESCRIBE RECENT EVENTS THAT INFLUENCED THE SELECTION OF THIS PROJECT:**

Describe recent events (e.g. changes in the watershed, discovery of a new hazard, zoning requirements, inter-agency agreements, etc.) that influenced the selection of this project.

Increased protection for treatment facilities has been an ongoing goal and was recognized as a priority in the 2021 Carson City Hazard Mitigation Plan. Completing this project to

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dry flood-proof the Water Resource Recovery Facility from the 500-year event would not only provide increased benefits to health and safety concerning wastewater related incidents but could alleviate personnel to respond to other hazard areas during flooding. The completion of this project could also potentially provide fiscal benefits in the reduction of insurance premiums the City is responsible for.

**E. SCOPE OF WORK (SOW):**

**STATE EXACT SOW DOCUMENT TITLE:**

Carson City Water Resource Recovery Facility  
Flood Protection Scope of Work

1. Describe the entire SOW of the project in clear, concise, ample detail.
2. Must provide a thorough description of **all tasks and activities** to be undertaken.
3. Must be written in sequential order from start to finish of the project.
4. Describe any land acquisition activities, and/or right-of-way or access easements that need to be obtained.
5. If structural, discuss how the structure/building/facility will be constructed or retrofitted.
6. Include building or structure dimensions, material types, depth and width of excavations, volume of materials excavated, type of equipment to be used, staging and parking areas, and any phasing of the project.
7. If any tunneling is proposed, describe the method and any temporary trenches or pits.
8. Describe any demolition activities that need to occur prior to construction or retrofitting.



**INSERT THIS DOCUMENT IN THE SOW ORDER OF YOUR ELECTRONIC DOCUMENTS.**

**F. HAS YOUR JURISDICTION PREVIOUSLY RECEIVED HMGP FUNDING?**

Yes  No  Unknown | If yes, provide disaster number(s):

**G. HAS YOUR JURISDICTION RECEIVED ANY OTHER FUNDING?**

Describe all other funding received for this project and all other recent projects. Identify the funding source (i.e., Federal, State, Private, etc.).

No other funding has been received or requested for this project. A BRIC grant (Federal) was awarded for project scoping, preliminary design, preliminary environmental & historic preservation (EHP) and cost benefit analysis for the Sutro Terrace Storm Drain, Basins, and associated work.

**H. RELATED PROJECTS:**

Describe any other projects or project components (whether or not funded by FEMA), which may be related to the proposed project, or are in (or near) the proposed project area. FEMA must look at all projects to determine a cumulative effect. FEMA reviews all interrelated projects under NEPA regulations.

As a part of the project, a LOMR application would be submitted to FEMA.

**I. HAZARD ANALYSIS TYPE:**

Select the hazard(s) below that this project will protect against. Select as many as needed.

- |  |   |   |  |
|--|---|---|--|
| <input type="checkbox"/> BIOLOGICAL      | <input type="checkbox"/> EARTHQUAKE       | <input type="checkbox"/> LAND SUBSISTENCE           | <input type="checkbox"/> TERRORIST               |
| <input type="checkbox"/> CHEMICAL        | <input type="checkbox"/> FIRE             | <input type="checkbox"/> MUD/LANDSLIDE              | <input type="checkbox"/> TORNADO                 |
| <input type="checkbox"/> CIVIL UNREST    | <input type="checkbox"/> FISHING LOSSES   | <input type="checkbox"/> NUCLEAR                    | <input type="checkbox"/> TOXIC SUBSTANCES        |
| <input type="checkbox"/> COASTAL STORM   | <input checked="" type="checkbox"/> FLOOD | <input type="checkbox"/> SEVERE ICE STORM           | <input type="checkbox"/> TSUNAMI                 |
| <input type="checkbox"/> CROP LOSSES     | <input type="checkbox"/> FREEZING         | <input checked="" type="checkbox"/> SEVERE STORM(S) | <input type="checkbox"/> WINDSTORM               |
| <input type="checkbox"/> DAM/LEVEE BREAK | <input type="checkbox"/> HUMAN CAUSE      | <input type="checkbox"/> SNOW                       | <input type="checkbox"/> OTHER (describe below): |
| <input type="checkbox"/> DROUGHT         | <input type="checkbox"/> HURRICANE        | <input type="checkbox"/> SPECIAL EVENTS             | <input type="text"/>                             |

**J. DESIGN PLANS:**

If your project requires design plans, plans should be prepared to supplement the SOW. If the project involves ground disturbance, (e.g. enlarging ditches or culverts, diversion ditches, detention basins, storm water improvements, etc.) include the following: **Design plans including the floodwall footings will be completed as part of the project if awarded.**

1. **Scale:** Plans should be drawn to scale (e.g. 1" to 100' or 1" to 200') depicting the entire land parcel, showing buildings, improvements, underground utilities, other physical features, dimensions and cross sections.
  2. **Identification:** Indicate agency name, land owner, civil engineer, soil engineer, geologist, map preparer, and date of map preparation. Also, indicate the name of the project.
  3. **Legend/Orientation:** Include a legend explaining all lines and symbols. Identify property acreage and indicate direction with a north arrow (pointing to top or right hand side of the plan).
  4. **Dimensions:** Show property lines and dimensions. Also, show boundary lines of project and their dimensions if only a portion of the property is being utilized for the project.
  5. **Structures:** Identify all existing and proposed buildings and structures including storm drains, driveways, sidewalks and paved areas.
  6. **Utilities:** Indicate names and location of utilities on property (water, sewage, gas, electric, telephone, cable).
  7. **Roads/Easements:** Indicate location, names, and centerline of streets and recorded roads. Identify any utility, drainage or right-of-way easements on the property.
  8. **Drainage:** Show the location, width and direction of flow of all drainage courses on site.
  9. **Grading/Topographic Information:** Show existing surface contours on-site and bordering the property
  10. **Parking:** Show all construction parking and staging areas and provide dimensions.
  11. **Cross Sections:** Provide cross sections of proposed buildings, structures or other improvements, and any trenches, temporary pits or catchment basins.
- If applicable, provide studies and engineering documentation, including any Hydrology and Hydraulics (H&H) data. **Preliminary hydraulic modeling provided**
- If applicable, provide drawings or blueprints that show the footprint and elevations.  
**N/A**



**PLEASE SEND ELECTRONIC VERSIONS OF DESIGN PLANS, DRAWINGS OR BLUEPRINTS.**

**K. PROJECT ALTERNATIVES:**

Identify three project alternatives:

**1. ALTERNATIVE #1 – NO ACTION:**

Describe the No Action alternative below. The No Action alternative evaluates the consequences of taking no action and leaving conditions as they currently exist.

The Water Resource Recovery Facility (WRRF) will remain in its current state of risk. Various structures within the facility are not protected from the 100 and 500-year events (refer to Project Map) due to changes in elevation of the berms on the northern and southern boundaries of the WRRF over time.

**2. ALTERNATIVE #2 – PROPOSED ACTION:**

Describe the Proposed Action alternative below. The Proposed Action alternative is the proposed project to solve the problem. Explain why the proposed action is the preferred alternative. Identify how the preferred alternative will solve the problem, why the preferred alternative is the best solution for the community, why and how the alternative is environmentally preferred and why the project is the economically preferred alternative.

The proposed project includes extending the masonry floodwall approximately 1,300 feet to the east along the northern side of the facility adjacent to Lower King's



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Canyon Creek, installing a flood curtain across the driveway off Airport Road, as well as extending the floodwall approximately 500 feet to the east on the south side of the facility. This project is the preferred alternative because the WRRF would be dry flood-proofed for the 500-year event, providing a greater level of protection for the community and environment from wastewater incidents due to flooding. Dry flood-proofing the facility would greatly reduce the likelihood of large fiscal impacts should structures in the facility become damaged by flood.

### 3. **ALTERNATIVE #3 – SECOND ACTION ALTERNATIVE:**

Describe the Second Action alternative below. The Second Action alternative described must also solve the described problem. State why this alternative wasn't chosen. It must be a viable project that could be substituted in the event the proposed action is not chosen.

If the preferred alternative was not chosen, the second action alternative to provide increased protection for the facility would be to reconstruct the earthen berms on the northern and southern boundaries of the WRRF to achieve protection from the 100-year event as previously designed in 2011.

**WORK SCHEDULE INFORMATION**

**14. PROJECT WORK SCHEDULE:**

The intent of the work schedule is to provide a realistic appraisal of the time and components required to complete the project.

- Describe each of the major work elements and milestones in the description section below.
- Project subapplication examples are: construction, architectural, design, engineering, inspection, testing, permits, project management, mobilization and de-mobilization.
- State the total timeframe anticipated for each of the work elements.
- State the total timeframe anticipated to complete the project.
- Work schedule must mirror SOW, budget and BCA.OPTIONAL: Provide the work schedule in GANTT chart form as supplemental documentation in the work schedule section of the binder Include this information as an example.

WORK SCHEDULE EXAMPLE		
#	DESCRIPTION	TIMEFRAME
1.	Kick-off, 90% design meetings	3 months
2.	Final contract drawing development	5 months
3.	Open bids and award contract	4 months
4.	Construction – Mobilization	5 months
5.	Construction – Demolition	4 months
6.	Construction – Concrete and conduit work	2 months
7.	Construction – Trenching	2 weeks
8.	Construction – Utility relocation	4 months
9.	Construction – Electrical Installation	1 month
10.	Construction – Site Restoration	1 week
11.	Construction – Complete punch list	2 months
12.	Construction – Demobilization	1 week
13.	Project Close-out and record drawings	2 months
14.	Grant Close out	3 months
TOTAL MONTHS:		36 months



**TOTAL PROJECT DURATION (INCLUDING CLOSE-OUT) MUST NOT EXCEED A 36 MONTH PERIOD OF PERFORMANCE (POP).**

#	DESCRIPTION	TIMEFRAME
1.	CCWRRF Flood Protection Schedule.pdf	
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.	<b>STANDARD VALUE (DO NOT CHANGE)</b> Grant Close-out	3 months
TOTAL MONTHS:		36

If more lines are needed than provided, indicate the title of document in box 1 and attach a separate work schedule in the schedule section of binder.

**COST ESTIMATE INFORMATION**

**15. HMGP COST ESTIMATE SPREADSHEET:**

**A. COST ESTIMATE INSTRUCTIONS:**

Using the [HMGP Cost Estimate Spreadsheet](#), provide a detailed cost estimate breakdown.

- Cost estimate describes the anticipated costs associated with the SOW for the proposed mitigation activity. Cost estimates must include detailed estimates of cost item categories.
- Only include costs that are directly related to performing the mitigation activity. If additional work, such as remodeling, additions, or improvements are being done concurrently with the mitigation work, do not include these costs in the submitted budget.
- Documentation that supports the budget must be attached to the subapplication in the budget section of the binder.
- Total costs must be consistent with the requested federal share plus the matching funds and must be consistent with the project cost in the Benefit Cost Analysis (BCA), SOW and work schedule.

HMGP COST ESTIMATE SPREADSHEET EXAMPLE					
#	ITEM NAME	Unit Qty	UNIT	UNIT COST	COST EST TOTAL
1.	Pre-Award Costs: Develop BCA	4	HR	\$150	\$600
2.	Temp. Inlet Filter Rolls	4	EA	\$250	\$1000
3.	Temp. Fiber Roll	1850	LF	\$3	\$5550
4.	Hydraulic Mulch	1000	SQYD	\$2	\$2000
5.	Plane Asphalt Concrete Pavement	650	SQYD	\$22	\$14300
6.	Street Sweeping for 30 days	30	EA	\$350	\$10500
7.	Roadway Excavation	70	CY	\$40	\$2800
8.	Aggregate Base, Class 2	210	CY	\$75	\$15750
9.	Remove Concrete Pavement	650	SQYD	\$340	\$10540
10.	Asphalt Concrete, Type B	180	TON	\$150	\$27000
11.	Asphalt Concrete, Leveling	10	TON	\$300	\$3000
12.	Asphalt Concrete Dike, Type A	235	LF	\$15	\$3525
13.	Asphalt Concrete Dike, Type F	125	LF	\$8	\$120
14.	Place Asphalt Concrete	15	SQFT	\$8	\$120
15.	18" Corrugated Steel Pipe Riser	5	LF	\$125	\$625
16.	24" Reinforced Concrete Pipe	275	LF	\$170	\$46750
17.	84" Reinforced Concrete Pipe Install	572	LF	\$400	\$228800
18.	Precast Triple Concrete Box Culvert	44	LF	\$1500	\$66000
19.	Curb Inlet - Type B-1 (L=9')	1	EA	\$6000	\$6000
20.	Curb Inlet - Type B-1 (L=13')	1	EA	\$6300	\$6300
21.	Curb Inlet - Type B-1 (L=15')	1	EA	\$6800	\$6800
22.	Storm Drain Cleanout - Type A-8	3	EA	\$7500	\$22500
23.	8" PVC Sewer	89	LF	\$100	\$8900
24.	Cellular Block (Precast)	4100	SQFT	\$20	\$82000
25.	Project Identification Sign	2	EA	\$1000	\$2000
<b>Total Project Cost Estimate:</b>					<b>\$573480</b>

**B. INELIGIBLE COSTS:**

The following are ineligible line items:

- Lump Sums
- Contingency Costs
- Miscellaneous Costs
- "Other" Costs
- Indirect Charges
- Overhead Costs
- Cents (must use whole dollar amounts, round unit prices up to whole dollars)

**C. PRE-AWARD COSTS:**

Eligible pre-award costs are costs incurred after the disaster date of declaration, but prior to grant award. Pre-award costs directly related to developing the application may be funded.

- Developing a BCA
- Preparing design specifications
- Submission of subapplication
- Gathering environmental and historic data
- Workshops or meetings related to development



**Subapplicants who are not awarded funds will not receive reimbursement for pre-award costs.**

**D. COST ESTIMATE NARRATIVE:**

FEMA requires a cost estimate narrative that explains all projected expenditures in detail. The cost estimate narrative is intended to mirror the cost estimate spreadsheet and should include a full detailed narrative to support the cost estimates listed in the HMGP Project Cost Estimate Spreadsheet. If your cost estimate includes City, County, or State employees' time (your agency), include personnel titles and salary/hourly wages plus benefits for a total hourly cost. Detailed timesheets must be retained.

Title the document "Cost Estimate Narrative" and include in the budget section of the binder.

**16. FEDERAL/NON-FEDERAL SHARE INFORMATION:**

**A. FUNDING RESTRICTIONS:**

HMGP funding is restricted to a maximum of \$5 million federal share for each project subapplication. FEMA will contribute up to 75 percent of the total project cost. A minimum of 25 percent of the total eligible costs must be provided from a non-federal source. State does not contribute to local cost share.

**For example:** for a \$6,250,000 total project cost, the federal requested share (75 percent) would be \$5,000,000. The non-federal match share (25 percent) provided would be \$1,250,000.

A jurisdiction may contribute an amount greater than the 25 percent non-federal share.

**For example:** for a \$10,000,000 total project cost, the federal requested share cannot exceed \$5,000,000. Therefore, the non-federal match provided must be \$5,000,000, which exceeds 25 percent of the total cost share. The sum of the non-federal and federal shares must equal the total project cost.

**B. TOTAL PROJECT COST ESTIMATE:**

\$2,150,971
-------------

Enter total cost formulated on [HMGP Cost Estimate Spreadsheet](#)

ENTER \$ IN BOX ABOVE



**VERIFY ALL AMOUNTS ENTERED ARE ACCURATE. INCORRECT AMOUNTS WILL DELAY PROCESSING OF YOUR SUBAPPLICATION.**

<b>FEDERAL SHARE (75% MAXIMUM)</b>	REQUESTED AMOUNT:	\$1,935,874
		ENTER \$ IN BOX ABOVE
	PERCENTAGE AMOUNT:	90
		ENTER % IN BOX ABOVE
<b>NON-FEDERAL SHARE (25% MINIMUM)</b>	REQUESTED AMOUNT:	\$215,097
		ENTER \$ IN BOX ABOVE
	PERCENTAGE AMOUNT:	10
		ENTER % IN BOX ABOVE

**C. NON-FEDERAL MATCH SOURCE: MATCH COMMITMENT LETTER:**

Use the [Local Match Commitment Letter Template](#) to complete this section and add completed letter to the match section of the binder.

- A signed Match Commitment Letter must be provided on agency letterhead.
- The non-federal source of matching funds must be identified by name and type.
- If "other" is selected for funding type, provide a description.
- Provide the date of availability for all matching funds.
- Provide the date of the Funding Match Commitment Letter.
- The funds must be available at the time of submission unless prior approval has been received from NV DEM.
- If there is more than one non-federal funding source, provide the same information for each source on an attached document.
- Match funds must be in support of cost items listed in the cost estimate spreadsheet.
- Requirements for donated contributions can be found in 2 CFR 200.306.

**BENEFIT/COST EFFECTIVENESS INFORMATION**


**17. BENEFIT/COST EFFECTIVENESS INFORMATION**

**A. BCA INSTRUCTIONS:**

FEMA will only consider subapplications from subapplicants that use a FEMA-approved methodology to conduct the Benefit Cost Analysis (BCA). BCA must be legible, complete and well-documented.

- Project BCAs must demonstrate cost-effectiveness through a Benefit Cost Ratio (BCR) of 1.0 or greater.
- Projects with a BCR of less than 1.0 will not be considered for funding.
- Total project cost must be used in the BCA.
- Maintenance of a completed HMGP project is not an eligible reimbursement activity, but must be included in the BCA.

BCA Version 6.0 is the only software that is allowed for conducting a BCA. Some project types may qualify for pre-calculated benefits. Additional information on the BCA Toolkit is available at: <https://www.fema.gov/benefit-cost-analysis>.

 The FEMA BCA Technical Assistance Helpline is available to provide assistance with FEMA’s BCA software by calling 1-855-540-6744 or via email at [BCHelpLine@FEMA.dhs.gov](mailto:BCHelpLine@FEMA.dhs.gov). The FEMA helpline is only to be utilized for technical assistance questions. The FEMA helpline will not verify the accuracy of your BCA.

**B. BCA INFORMATION:**

Once the BCA is completed, enter information requested below.

<b>1. NET PRESENT VALUE OF PROJECT BENEFITS:</b>	\$3,792,212
<b>2. TOTAL PROJECT COST ESTIMATE:</b>	\$2,350,947
<b>3. BENEFIT COST RATIO:</b>	1.59

**C. ANALYSIS TYPE:**

- |  |                                   |   |                                     |
|--|-----------------------------------|---|-------------------------------------|
| <input checked="" type="checkbox"/> FLOOD                  | <input type="checkbox"/> WILDFIRE | <input type="checkbox"/> EXEMPT (5% PROJECTS) | <input type="checkbox"/> EARTHQUAKE |
| <input type="checkbox"/> HURRICANE WIND                    | <input type="checkbox"/> DROUGHT  | <input type="checkbox"/> PRE-CALCULATED       | <input type="checkbox"/> LANDSLIDE  |
| <input type="checkbox"/> DAMAGE FREQUENCY ASSESSMENT (DFA) |                                   |   |                                     |

**D. ANALYSIS DATE (date BCA was conducted):** 07/12/2022

**E. PROVIDE BCA ELECTRONIC COPIES IN FORMAT DESCRIBED BELOW:**

- Provide An electronic copy of the report in the BCA section of the binder and all backup documentation for information used in the BCA.

## MAINTENANCE ASSURANCE INFORMATION

### 18. PROJECT MAINTENANCE INFORMATION:

#### A. MAINTENANCE ASSURANCE LETTER:

- Using the [Project Maintenance Letter Template](#), identify all maintenance activities required to preserve the long-term mitigation effectiveness of the project.
- Examples of maintenance include: inspection of the project, cleaning and grubbing, trash removal, replacement of worn out parts, etc.
  - Attach a maintenance schedule, estimated annual costs, and a signed maintenance commitment letter for the useful life of the project.

## NATIONAL FLOOD INSURANCE PROGRAM (NFIP)

### 19. NFIP INFORMATION:

#### **i** CONTACT YOUR COUNTY OR LOCAL FLOODPLAIN ADMINISTRATOR FOR NFIP INFORMATION.

#### A. NFIP PARTICIPATION:

1. Is the jurisdiction where the project is located participating in the NFIP? YES  NO
- a. If yes, are they in good standing? YES  NO
- b. If no, explain:

#### B. PROJECT LOCATION:

1. Is this project located in a floodplain or floodway designated on a FEMA Flood Insurance Rate Map (FIRM)? YES  NO
- a. Mark the project location on the FIRM and attach to subapplication in the maps section of the binder.
2. Provide the following information for the location of the project:
- a. FIRM panel number:
- b. FIRM zone designations:
- c. NFIP community ID number:

- C. LAST [COMMUNITY ASSISTANCE VISIT \(CAV\)](#) DATE:

## ENVIRONMENTAL INFORMATION

### 20. ENVIRONMENTAL INFORMATION:

#### A. FEMA ENVIRONMENTAL CHECKLIST:

- Complete the [FEMA Site Information, Environmental Review, and Checklist](#) and attach to the environmental section of the binder. Provide a detailed response to each question. Attach supporting documentation in compliance with [FEMA's frontloading requirements](#).

## PRINT THIS PAGE – ORIGINAL SIGNATURE IS REQUIRED

### PROJECT CONDITIONS

Indicate by checking each box below that you will adhere to these listed project conditions.

- If during implementation of the project, ground-disturbing activities occur and artifacts or human remains are uncovered, all work will cease and FEMA, NV DEM, and the State Historic Preservation Officer (SHPO) will be notified.
- If deviations from the approved scope of work result in design changes, the need for additional ground disturbance, additional removal of vegetation, or will result in any other unanticipated changes to the physical environment, FEMA will be contacted and a re-evaluation under NEPA and other applicable environmental laws will be conducted.
- If wetlands or waters of the U.S. are encountered during implementation of the project, not previously identified during project review, all work will cease and FEMA will be notified.
- Due to the Federally mandated Environmental and Historic Preservation (EHP) review; no construction will occur for this project prior to FEMA and NV DEM approval.

### AUTHORIZATION


The undersigned does hereby submit this subapplication for financial assistance in accordance with the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program (HMGP) and the State Hazard Mitigation Administrative Plan and certifies that the subapplicant (e.g., organization, city, or county) will fulfill all requirements of the program as contained in the program guidelines and that all information contained herein is true and correct to the best of our knowledge.

Subapplicant Authorized Agent

**NAME:** Robert D. Fellows

**TITLE:** Chief Stormwater Engineer

**ORGANIZATION:** Carson City Public Works

**SIGNATURE:** 

**DATE:** 7/12/2022

## WRRF Flood Protection Project

### Budget Narrative

**Task:** Pre-Award HMGP Application Preparation Cost

**Description:** Cost associated with preparation of the Mitigation Project BRIC application for this project

**Cost:** Carson City Public Works hired a contractor to assist with the application the total fee was \$21,780

**Task:** Grant Management

**Description:** Cost associated with management of the HMGP grant at 5% of the project cost (not including pre-award costs)

**Cost:** \$100,731

**Task:** Project Management

**Description:** This task captures the cost of managing the design project from the engineering consultant.

**Cost:**

Cost Estimate			
Labor Classifications	Rate	Hours	Cost
Project Manager	\$250	24	\$6,000
Senior Professional	\$180	4	\$720
Analyst	\$130	0	\$0
<b>Total</b>			<b>\$6,720</b>

**Task:** Boundary and Topographic Survey

**Description:** This task will complete Filed survey to support construction documents.

**Cost:**

Cost Estimate			
Labor Classifications	Rate	Hours	Cost
Survey Manager	\$195	24	\$4,680



Agenda Item #5c

Survey Crew (2 man/GPS)	\$185	40	\$7,400
<b>Total</b>			<b>\$12,080</b>

**Task:** Utility Base Map and Data Collection

**Description:** This task will collect existing utility as-builts and blue stake data to generate a utility base map.

**Cost:**

<b>Cost Estimate</b>			
<b>Labor Classifications</b>	<b>Rate</b>	<b>Hours</b>	<b>Cost</b>
Project Manager	\$250	2	\$500
Senior Professional	\$180	4	\$720
Analyst	\$130	12	\$1,560
<b>Total</b>			<b>\$2,780</b>

**Task:** Geotechnical Analyses

**Description:** This task will perform geotechnical analyses to support design and construction.

**Cost:**

<b>Cost Estimate</b>			
<b>Labor Classifications</b>	<b>Rate</b>	<b>Hours</b>	<b>Cost</b>
Project Manager	\$250	16	\$4,000
Senior Professional	\$180	24	\$4,320
Analyst	\$130	80	\$10,400
<b>Total</b>			<b>\$18,720</b>

**Task:** Existing and Proposed Conditions Hydrology and Hydraulic Analyses

**Description:** This task will update and finalize existing and proposed conditions hydrology and hydraulics (H&H) to support design. Preliminary H&H was developed as part of the HMGP grant application.

**Cost:**

<b>Cost Estimate</b>			
<b>Labor Classifications</b>	<b>Rate</b>	<b>Hours</b>	<b>Cost</b>
Project Manager	\$250	8	\$2,000
Senior Professional	\$180	40	\$7,200
Analyst	\$130	120	\$15,600
<b>Total</b>			<b>\$24,800</b>

## Agenda Item #5c

**Task:** Public Meeting

**Description:** This task will conduct a public meeting to solicit input on wall design and aesthetics.

**Cost:**

<b>Cost Estimate</b>			
<b>Labor Classifications</b>	<b>Rate</b>	<b>Hours</b>	<b>Cost</b>
Project Manager	\$250	4	\$1,000
Senior Professional	\$180	4	\$720
Analyst	\$130	24	\$3,120
<b>Total</b>			<b>\$4,840</b>

**Task:** Civil Design

**Description:** This task will complete plan production with milestones at 30%, 60%, 95%, and final. The final deliverable will be plans, specifications, and cost estimate for construction of the wall.

**Cost:**

<b>Cost Estimate</b>			
<b>Labor Classifications</b>	<b>Rate</b>	<b>Hours</b>	<b>Cost</b>
Project Manager	\$250	40	\$10,000
Senior Professional	\$180	80	\$14,400
Analyst	\$130	160	\$20,800
<b>Total</b>			<b>\$45,200</b>

**Task:** Environmental Permitting

**Description:** This task will complete environmental assessments and permitting required prior to construction.

**Cost:**

<b>Cost Estimate</b>			
<b>Labor Classifications</b>	<b>Rate</b>	<b>Hours</b>	<b>Cost</b>
Project Manager	\$250	4	\$1,000
Senior Professional	\$180	8	\$1,440
Analyst	\$130	40	\$5,200
<b>Total</b>			<b>\$7,640</b>

## Agenda Item #5c

**Task:** FEMA CLOMR/LOMR Application

**Description:** This task will complete preparation, submittal, and approval by FEMA of a Conditional Letter of Map Revision and Letter of Map Revision per the wall design and upstream/downstream impacts to the Special Flood Hazard Area(s). The Letter of Map Revision will be based on survey as-built data.

**Cost:**

<b>Cost Estimate</b>			
<b>Labor Classifications</b>	<b>Rate</b>	<b>Hours</b>	<b>Cost</b>
Project Manager	\$250	32	\$8,000
Senior Professional	\$180	80	\$14,400
Analyst	\$130	120	\$15,600
<b>Total</b>			<b>\$38,000</b>

**Task:** Stormwater Pollution Prevention Plan

**Description:** This task will develop the SWPPP for inclusion in the final plan set.

**Cost:**

<b>Cost Estimate</b>			
<b>Labor Classifications</b>	<b>Rate</b>	<b>Hours</b>	<b>Cost</b>
Project Manager	\$250	2	\$500
Senior Professional	\$180	4	\$720
Analyst	\$130	24	\$3,120
<b>Total</b>			<b>\$4,340</b>

**Pre-award, management, and design project subtotal = \$287,631**

**Summary:** The above tasks constitute the preconstruction portion of the mitigation project, from pre-award activities to developing construction documents. Construction costs are provided in a separate attachment as an Engineer's Estimate of Probable Cost.

## HMGP Cost Estimate Spreadsheet

DATE	JURISDICTION NAME	DISASTER & PROJECT OR PLANNING #	PROJECT OR PLANNING TITLE
6/28/2022	Carson City	DR-4523-NV	Carson City WRRF Flood Protection

#	Item Name	Unit Quantity	Unit of Measure	Unit Cost	Cost Estimate Total
1	Pre-Award Costs	1	EA	\$ 21,780.00	\$ 21,780.00
2	Grant Management	1	EA	\$ 100,731.00	\$ 100,731.00
3	Project Management	1	EA	\$ 6,720.00	\$ 6,720.00
4	Boundary and Topographic Survey	1	EA	\$ 12,080.00	\$ 12,080.00
5	Utility Base Map and Data Collection	1	EA	\$ 2,780.00	\$ 2,780.00
6	Environmental Permitting	1	EA	\$ 7,640.00	\$ 7,640.00
7	FEMA CLOMR/LOMR Applications	1	EA	\$ 38,000.00	\$ 38,000.00
8	Existing and Proposed Conditions H&H Analyses	1	EA	\$ 24,800.00	\$ 24,800.00
9	Civil Design	1	EA	\$ 45,200.00	\$ 45,200.00
10	Geotechnical Analyses	1	EA	\$ 18,720.00	\$ 18,720.00
11	Public Meeting	1	EA	\$ 4,840.00	\$ 4,840.00
12	Stormwater Pollution Prevention Plan	1	EA	\$ 4,340.00	\$ 4,340.00
13	Restore Vegetation	1	EA	\$ 15,000.00	\$ 15,000.00
14	Erosion Control	1	EA	\$ 10,000.00	\$ 10,000.00
15	Quality Control	1	EA	\$ 10,000.00	\$ 10,000.00
16	Existing Fence Removal	1730	LF	\$ 8.00	\$ 13,840.00
17	Floodwall Construction	1730	LF	\$ 600.00	\$ 1,038,000.00
18	Floodgate and Driveway Improvements	1	EA	\$ 470,500.00	\$ 470,500.00
19	Construction Staking	1	EA	\$ 10,000.00	\$ 10,000.00
20	Mobilization/Demobilization	1	EA	\$ 20,000.00	\$ 20,000.00
21	Job Site Supervision	1	EA	\$ 10,000.00	\$ 10,000.00
22	Traffic Control	1	EA	\$ 5,000.00	\$ 5,000.00
23	Dust Control	1	EA	\$ 5,000.00	\$ 5,000.00
24	Construction Management	1	EA	\$ 25,000.00	\$ 25,000.00
25	Construction Contingency (15%)	1	EA	\$ 231,000.00	\$ 231,000.00
<b>Total Project Cost Estimate:</b>				<b>\$</b>	<b>2,150,971.00</b>

## 2. SCOPE OF WORK for Hot Springs-Buckbrush Flood Control Project

### The Situation:

The Johnson Lane community in Minden, NV has a long history with flash flooding events. There are well documented flash flood events from 1992-94 and recently in 2014 and 2015. The most recent events in 2014 and 2015, for many in the Johnson Lane community caused enough property damage that they decided something needed to be done to prevent future problems.

In 2017, a group of property owners in the Johnson Lane area of Minden, NV located in Douglas County filed a lawsuit against Douglas County for flooding issues. Concurrently, Douglas County partnered with the Carson Water Subconservancy District to obtain FEMA funding to complete the Johnson Lane Area Drainage Master Plan (ADMP) document. The plan looked at comprehensive solutions on public lands that could be implemented to alleviate the historical flooding issues in Johnson Lane. The litigation was settled in 2019. With limited County funds, Phase 1 plans were started and the designation for construction of two detention basins were proposed in the ADMP (*Stephanie and Romero detention basins*).



July 2014: Flooding in the neighborhood adjacent to Hot Springs Mountain in Johnson Lane.

## Agenda Item #5d

Through subsequent negotiations, funds were made available for the construction of the Skyline and Chowbuck detention basins.

The hydrology modeling was looked at with the proposed conditions being the four detention basins constructed, *Stephanie, Romero, Skyline and Chowbuck*, and the modeling showed that there would continue to be drainage issues in the area, although it was shown to be less depth and velocity than existing conditions without the upstream detention.

The construction of those four basins alone doesn't solve the flooding problem for all of the residents. In the ADMP, the Hot Springs Mountain-Buckbrush Wash System was prioritized as number two.

### **Proposed Solution:**

The hydrologic interaction and complexity of the Hot Springs Mountain washes and Buckbrush Wash necessitated the development of a series of conceptual basins, channels, and underground pipes to effectively mitigate the flooding and sedimentation hazards. This upstream collection and conveyance concept are also necessary to meet the primary objective for the Johnson Lane area which is to safely route stormwater flow through the community to the Carson River. The Hot Springs-Buckbrush system is the most complex.

Past flooding records and the sediment engineering task from the ADMP both suggest that the Hot Springs Mountain washes convey a significant volume of sediment to the Johnson Lane community. The most efficient way to mitigate the hazard is to capture the sediment volume upstream in a series of 100-year storm designed basins, then capture the water volume in basins downstream.

As climate change is affecting our area increasing the event for another flood, Douglas County is working to be mitigate devastating flood outcomes. The County is requesting funding to complete this needed project to mitigate future major flood events, costly public and private property damage and threats to human health and safety.



Agenda Item #5d



*This property at the end of Mac Drive, the base of Hot Springs Mountain, suffered a major mud flow event in July 2014.*



*This property at the end of Mac Drive endured months of clean up after the July 2014 flood event.*



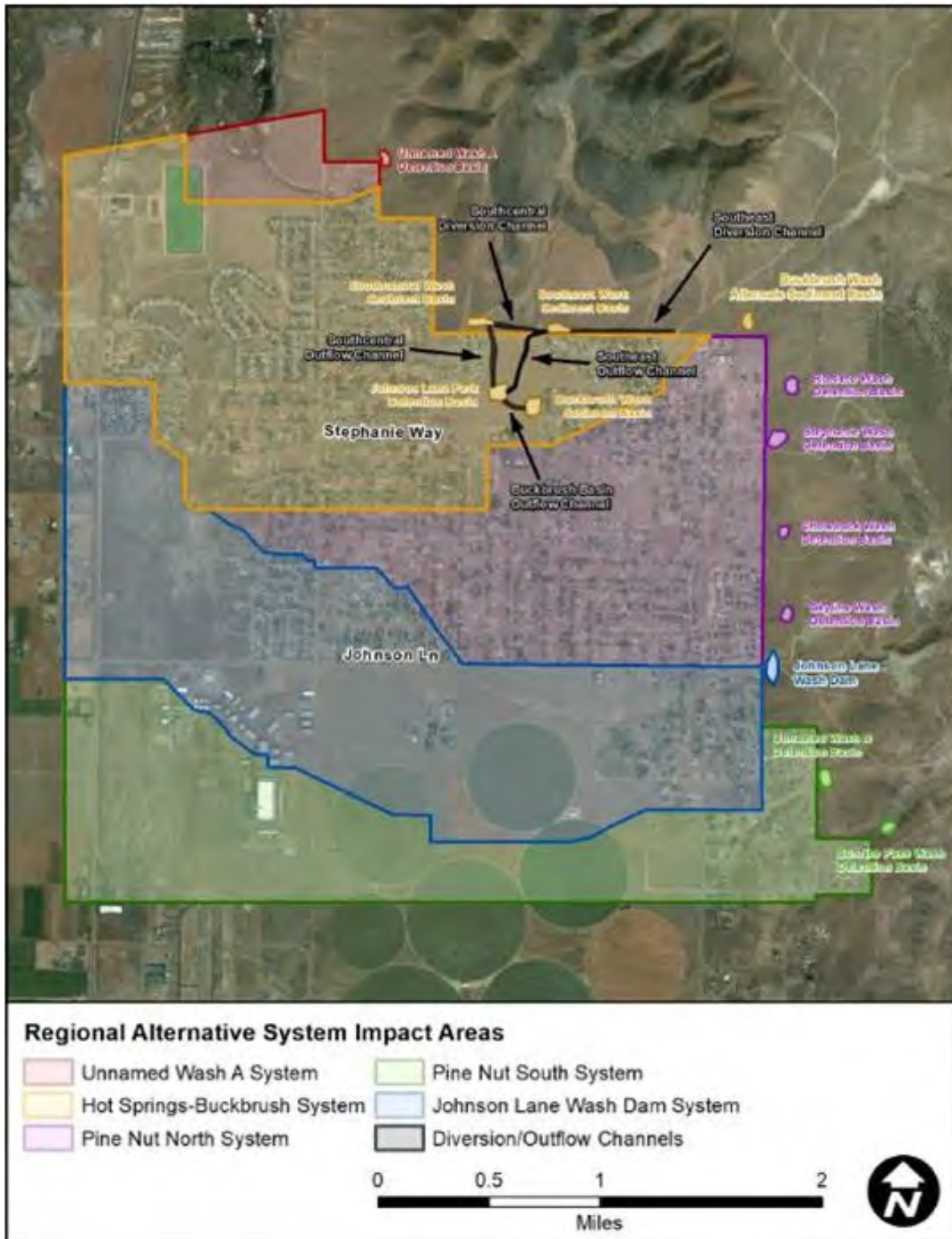
Agenda Item #5d



*Most of the properties on Mac Drive and Jackie Circle (20+) were left with feet of mud and debris after the flash flood.*



## Agenda Item #5d



## Agenda Item #5d

### **Monitoring/ Technical Capacity:**

The Douglas County Stormwater Division within the Public Works Department with over two decades of experience has maintenance staff dedicated to the inspection, monitoring and maintenance of all County owned and operated detention basins and other drainage infrastructure.

### **Project Schedule:**

**January 2023:** Grant awarded

**March 2023:** Solicit proposals for bringing the 15% design plans of the Hot Springs-Buckbrush System up to 100% design plans for construction on Douglas County's right-of-way granted from the Bureau of Land Management for the 100-year design storm.

**March 2024:** Complete the 100% design plans on the Hot Springs-Buckbrush System for the 100-year design storm.

**June 2024:** Compile construction bid documents and solicit bids.

**August 2024:** Begin construction.

**October 2025:** Complete construction.

**January 2025:** Project Close-out

### **Cost Narrative:**

Design costs: \$1,356,600

Construction costs: \$6,783,000

Project Total: 8,139,600

Funding Request – 7,325,640

Match - (Nonfederal funds - funded) \$813,960

# HAZARD MITIGATION GRANT PROGRAM PROJECT SUBAPPLICATION

**NOTE:** Please click within the greyed section to begin typing in each section of the application.

**DISASTER NUMBER:**

DR-4523-NV

**JURISDICTION NAME:**

Douglas County

**PROJECT TITLE:**

Hot Springs-Buckbrush Flood Control  
Project

**PROJECT NUMBER:**

PROJECT NUMBER IS THE CONTROL NUMBER RECEIVED AT TIME OF SUCCESSFUL NOI SUBMITTAL



**Subapplications are due postmarked to NV DEM by:**

**DR-4523-NV**

**Deadline: July 15, 2022**

## HAZARD MITIGATION GRANT PROGRAM (HMGP)

### INTRODUCTION

#### INTRODUCTION

As a result of the declaration of a major federal disaster or aggregate Fire Management Assistance declarations, the State of Nevada is eligible for HMGP funding. The State has established priorities to accept project subapplications from subapplicants statewide, state agencies, tribal governments, local governments, and Private Non-Profits.

Hazard mitigation activities are aimed at reducing or eliminating future damages. Activities include cost effective hazard mitigation projects and hazard mitigation plans approvable by the Federal Emergency Management Agency (FEMA).

Nevada's Enhanced State Hazard Mitigation Plan (ESHMP) accreditation resulted in additional dollars available for local agencies' hazard mitigation plan and project funding for Hazard Mitigation Grant Program (HMGP). In order to maintain ESHMP status, further information is requested by FEMA. This information is requested as a means of assessing the pro-activity of your community or agency.

#### PUBLIC ASSISTANCE

If your project is aimed at repairing a damaged facility resulting from a federally declared disaster, contact the Public Assistance (PA) Program at [disaster-recovery@dps.state.nv.us](mailto:disaster-recovery@dps.state.nv.us). HMGP does not fund repairs for damages that result after a disaster.

#### TIME EXTENSIONS

Time extensions may be requested, and will be approved or denied on a case-by-case basis. To request additional time to submit a subapplication, send an email to the [mitigation@dps.state.nv.us](mailto:mitigation@dps.state.nv.us) mailbox. The subject line must include: "Subapplication Time Extension Request (include Disaster Number and Project Control Number)". The body of the message must include justification and specific details supporting why more time is needed and how much additional time is requested.

#### QUESTIONS

Submit all HMGP subapplication questions to the following mailbox: [jwoodward@dps.state.nv.us](mailto:jwoodward@dps.state.nv.us)

## HAZARD MITIGATION GRANT PROGRAM REGULATIONS

### REGULATIONS

Federal funding is provided under the authority of the [Robert T. Stafford Emergency Assistance and Disaster Relief Act \(Stafford Act\)](#) through FEMA and the Nevada Division of Emergency Management (NV DEM). NV DEM is responsible for identifying program priorities, reviewing subapplications and forwarding recommendations for funding to FEMA. FEMA has final approval for activity eligibility and funding.

The federal regulations governing HMGP are found in Title 44 of the Code of Federal Regulations (44CFR), Part 201 (Planning) and Part 206 (Projects) and in Title 2 of the Code of Federal Regulations (2CFR), Part 200 (Uniform Administrative Requirements).

The FEMA regulations that establish the agency-specific process for implementing NEPA are set forth in 44 CFR Part 10. FEMA will lead the NEPA clearance process.

### FEMA GUIDANCE

FEMA requires that all projects adhere to the [Hazard Mitigation Assistance Unified Guidance 2015](#).

## HAZARD MITIGATION GRANT PROGRAM ELIGIBILITY CHECKLIST

Before completing the subapplication, review the following HMGP eligibility checklist to ensure project meets the requirements for HMGP funding.

- Construction/Ground Breaking:** No construction or ground breaking activities are allowed prior to FEMA approval. HMGP does not fund projects that are in progress or projects that have already been completed.
- Scope of Work:** The project scope of work (SOW) must be consistent with the SOW provided in the approved Notice of Interest (NOI).
- Benefit Cost Analysis:** FEMA Benefit Cost Analysis (BCA) Toolkit Version 6.0 must be used to conduct the BCA. FEMA will only consider subapplications that use a FEMA-approved BCA methodology. Documentation to support all BCA calculations must be included in subapplication. Projects with a benefit cost ratio (BCR) of less than 1.0 will not be considered. BCA will be verified by FEMA and NV DEM upon subapplication submittal. 5% Initiative Projects do not need a BCA. Planning grants do not need a BCA.
- Subapplicant Eligibility:** Subapplicant must be an eligible State Agency, Local Government (City, County, Special Districts), Federally Recognized Tribe or Private Nonprofit (PNP) Organization. PNP is defined as private nonprofit educational, utility, emergency, medical, or custodial care facility, facilities providing essential governmental services to the general public and such facilities on Indian reservations (see 44 CFR Sections 206.221(e) and 206.434(a)(2)).
- LHMP/MJHMP:** Subapplicant must have a FEMA approved and adopted Local or Multi Jurisdictional Hazard Mitigation Plan (LHMP or MJHMP) to be eligible for HMGP funding. If a jurisdiction has its own governing body, jurisdiction must be covered under its own plan. LHMP's/MJHMP's expire five years after FEMA approval. Failure to update plan before expiration date may cause project deobligation.
- Cost Share:** Local funding match of 25% of the total project cost is required by the subapplicant. HMGP matching funds must be from a non-federal source. State does not contribute to local funding match.
- Period of Performance:** Projects must be completed (including close-out) within the 36 month Period of Performance (POP). POP begins upon FEMA approval of the subapplication.

**HAZARD MITIGATION GRANT PROGRAM  
ELIGIBILITY CHECKLIST  
(continued)**

- Complete Subapplication:** Failure to include all required documentation will delay the processing of your subapplication and may result in denial of project. The SOW, cost estimate, cost estimate narrative, work schedule and BCA must accurately mirror each other to be considered for funding. The budget narrative must include a detailed description of every cost estimate line-item, including the methodology used to estimate each cost.
- Regulations:** Subapplications that are inconsistent with state and federal HMGP regulations, or do not meet eligibility criteria will not be considered.
- Duplication of Programs:** HMGP funding cannot be used as a substitute or replacement to fund activities or programs that are available under other federal authorities, known as Duplication of Programs (DOP).
- Time Extensions:** Unless a time extension has been approved before the deadline, subapplications must be postmarked by the applicable deadline to be considered for funding.



**SUBAPPLICANT MUST BE ABLE TO CHECK EVERY BOX TO QUALIFY FOR HMGP FUNDING.**

## SUBAPPLICATION FORMAT INSTRUCTIONS

NV DEM requires the following format to be used for all HMGP subapplications.

### COMPLETE SUBAPPLICATION PACKAGE CONSISTS OF THE FOLLOWING:

**Electronic Version of the completed application**

- Table of Contents
- All electronic attachments must be clearly titled

**Send electronic version to NV DEM either by Thumb Drive or by DropBox or Microsoft Word 365 Zip function.**

- Attachments must be in one of the following formats: Microsoft Word Version 2007 (or newer), Microsoft Excel or Adobe PDF
- Benefit Cost Analysis (BCA) 6.0 must be included
- All electronic attachments must be clearly titled

### ORGANIZATION OF THE BINDER SECTIONS MUST BE TABBED IN THE FOLLOWING FORMAT:

0. Table of Contents
1. Subapplication
2. Scope of Work
3. Designs
4. Studies
5. Maps
6. Photos
7. Schedule (Additional documentation work schedule components, Gantt chart, etc.)
8. Budget ([HMGP Cost Estimate Spreadsheet](#) and cost estimate narrative)
9. Match ([Local Match Commitment Letter Template](#))
10. BCA Report ([BCA Version 6.0](#) report and BCA supporting documentation)
11. Maintenance ([Project Maintenance Letter Template](#))
12. Environmental ([FEMA's Site Information, Environmental Review and Checklist](#) and all other environmental documentation)
13. Supporting Docs (Any extra supporting documentation)

### MAIL OR DELIVER COMPLETED SUBAPPLICATIONS TO:

Nevada Division of Emergency Management  
Attention: Hazard Mitigation  
2478 Fairview Dr.  
Carson City, NV 89701



## PROJECT SUBAPPLICATION FORM

### SUBAPPLICANT INFORMATION

**1. SUBAPPLICANT:**   
NAME OF STATE AGENCY, TRIBAL GOVERNMENT, LOCAL GOVERNMENT, PRIVATE NON-PROFIT OR SPECIAL DISTRICT APPLYING FOR FUNDING

**2. TYPE:**      STATE/LOCAL GOVERNMENT          TRIBAL GOVERNMENT          PRIVATE NON-PROFIT          SPECIAL DISTRICT   

**3. FIPS #:**            IF YOU DO NOT KNOW YOUR FEDERAL IDENTIFICATION PROCESSING SYSTEM NUMBER (FIPS #), REQUEST BY EMAILING [mitigation@dps.state.nv.us](mailto:mitigation@dps.state.nv.us)

**4. DUNS #:**            IF YOU DO NOT KNOW YOUR DATA UNIVERSAL NUMBERING SYSTEM (DUNS) #, CALL DUN & BRADSTREET (D&B) @ 1-866-705-5711 FOR INFORMATION

**5. COUNTY:**            THE NAME OF THE COUNTY WHERE THE PROPOSED PROJECT IS LOCATED

**6. POLITICAL DISTRICT NUMBERS:**

CONGRESSIONAL:	NV2	<small>PROVIDE ONLY THE NUMBERS OF THE POLITICAL DISTRICTS FOR THE SUBAPPLICANT</small>
STATE ASSEMBLY:	39	
STATE LEGISLATIVE:	NV17	

**7. PRIMARY CONTACT:**  
POINT OF CONTACT FOR YOUR PROJECT. NEVADA DEM WILL CONTACT THIS PERSON FOR QUESTIONS AND/OR REQUESTS FOR INFORMATION

**NAME:**       Mr.  Ms.    **FIRST:**     **LAST:**

**TITLE:**     

**ORGANIZATION:**

**ADDRESS:**     

**CITY:**          **STATE:**     **ZIP CODE:**

**TELEPHONE:**       **FAX:**

**EMAIL:**     

**8. ALTERNATIVE CONTACT:**  
BACK-UP POINT OF CONTACT FOR YOUR PROJECT. NEVADA DEM WILL CONTACT THIS PERSON IF PRIMARY CONTACT IS UNAVAILABLE

**NAME:**       Mr.  Ms.    **FIRST:**     **LAST:**

**TITLE:**     

**ORGANIZATION:**

**ADDRESS:**     

**CITY:**          **STATE:**     **ZIP CODE:**

**TELEPHONE:**       **FAX:**

**EMAIL:**

**LOCAL HAZARD MITIGATION PLAN INFORMATION**

**9. LOCAL HAZARD MITIGATION PLAN (LHMP) REQUIREMENT:**

- A FEMA approved and locally adopted LHMP is required to receive federal funding for all project subapplication activities. Subapplicants for HMGP funding must have a FEMA-approved Mitigation Plan in place at the time of sub-award. Subapplication will be reviewed to ensure that the proposed activity is in conformance with subapplicant’s plan.

For State agencies, please use the currently approved Enhanced State Hazard Mitigation Plan.

**A. NAME/TITLE OF YOUR LHMP:** Douglas County Hazard Mitigation Plan

<p><b>B. LOCAL SINGLE JURISDICTIONAL MULTHAZARD MITIGATION PLAN:</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">DATE SUBMITTED TO NV DEM:</td> <td style="border: 1px solid black; text-align: center;">2019</td> </tr> <tr> <td>DATE APPROVED BY FEMA:</td> <td style="border: 1px solid black; text-align: center;">May 2019</td> </tr> <tr> <td>DATE ADOPTED BY LOCAL AGENCY:</td> <td style="border: 1px solid black; text-align: center;">10-3-2019</td> </tr> </table>	DATE SUBMITTED TO NV DEM:	2019	DATE APPROVED BY FEMA:	May 2019	DATE ADOPTED BY LOCAL AGENCY:	10-3-2019	<b>OR</b>	<p><b>LOCAL MULTI JURISDICTIONAL MULTHAZARD MITIGATION PLAN:</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">DATE SUBMITTED TO NV DEM:</td> <td style="border: 1px solid black;"></td> </tr> <tr> <td>DATE APPROVED BY FEMA:</td> <td style="border: 1px solid black;"></td> </tr> <tr> <td>DATE ADOPTED BY LOCAL AGENCY:</td> <td style="border: 1px solid black;"></td> </tr> <tr> <td>LEAD AGENCY:</td> <td style="border: 1px solid black;"></td> </tr> </table>	DATE SUBMITTED TO NV DEM:		DATE APPROVED BY FEMA:		DATE ADOPTED BY LOCAL AGENCY:		LEAD AGENCY:	
DATE SUBMITTED TO NV DEM:	2019															
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DATE SUBMITTED TO NV DEM:																
DATE APPROVED BY FEMA:																
DATE ADOPTED BY LOCAL AGENCY:																
LEAD AGENCY:																

**C. IF YOUR PROJECT IS REFERENCED IN YOUR LHMP, INDICATE WHERE THE PROPOSED PROJECT CAN BE FOUND; USE N/A FOR NOT APPLICABLE BOXES:**

CHAPTER	PART	SECTION	PAGE
8	5.H	8	8-8



**DO NOT INCLUDE A COPY OF YOUR PLAN WITH SUBAPPLICATION.**

**D. PROVIDE A SHORT NARRATIVE DETAILING HOW YOUR PROJECT ALIGNS WITH THE RISK AND HAZARD ASSESSMENTS, STRATEGIES, GOALS AND/OR OBJECTIVES OF YOUR PLAN:**

Flooding is the number one hazard in Douglas County. Based on historical events, flooding is a high probability in Douglas County. Climate change may be expected to lead to more frequent extreme weather conditions in the future. Goal number 5 in the plan is to “Reduce the possibility of damage and losses due to floods”. Action 5.H is to “Implement the Johnson Lane Area Drainage Master Plan”.

**COMMUNITY INFORMATION**

**10. COMMUNITY PARTICIPATION:**

**A. CHECK BOX(ES) IF YOUR COMMUNITY PARTICIPATES IN ANY OF THE FACTORS BELOW:**

Select a column appropriate to your type of project. Acronyms include: Community Wildfire Protection Plan (CWPP), Community Rating System (CRS) Plan and Unreinforced Masonry (URM) Participation.

<p style="text-align: center; background-color: #cccccc; margin: 0;"><b>FIRE</b></p> <p><input type="checkbox"/> CWPP, FIRE WIRE, FIRE SAFE</p> <p><input type="checkbox"/> CURRENT CEQA ACTIVITY</p> <p><input type="checkbox"/> DEFENSIBLE SPACE</p>	<p style="text-align: center; background-color: #cccccc; margin: 0;"><b>FLOOD</b></p> <p><input checked="" type="checkbox"/> CRS PLAN</p> <p><input type="checkbox"/> CURRENT CEQA ACTIVITY</p> <p><input checked="" type="checkbox"/> HYDROLOGY STUDY</p>	<p style="text-align: center; background-color: #cccccc; margin: 0;"><b>EARTHQUAKE</b></p> <p><input type="checkbox"/> SHAKEOUT DRILL PARTICIPATION</p> <p><input type="checkbox"/> URM PARTICIPATION</p> <p><input type="checkbox"/></p>
--	--	---

**B. PROVIDE A NARRATIVE DESCRIPTION OF ALL OF FACTORS SELECTED FROM LIST ABOVE:**

Douglas County participates in FEMA's CRS program, and is currently rated 6. The County has encouraged property owners in the Johnson Lane area to obtain flood insurance. Identifying, acquiring and developing locations for upstream regional detention basins on Buckbrush wash and Hot Springs Mountain will alleviate flood impacts on downstream properties.

**C. IS YOUR JURISDICTION REQUIRED TO PROVIDE PUBLIC NOTICE OF THIS PROJECT?**

Yes  No If yes, provide details:

The project will be constructed on federal BLM land, so the public notice will be required.

**PROJECT INFORMATION**

**11. PROJECT TITLE:** Hot Springs-Buckbrush Flood Control Project

MUST USE THE SAME PROJECT TITLE ORIGINALLY USED IN THE APPROVED NOTICE OF INTEREST (NOI). IF YOU NEED TO CHANGE YOUR PROJECT TITLE, CONTACT NV DEM at [mitigation@dps.state.nv.us](mailto:mitigation@dps.state.nv.us)

**12. PROJECT LOCATION:**

**A. IDENTIFY THE COUNTY/COUNTIES WHERE THE ACTIVITY WILL OCCUR:**

Douglas County

**B. LATITUDE/LONGITUDE COORDINATES:**

FEMA requires that all projects be geo-coded using latitude and longitude (lat/long) using NAD-83 or WGS-84 datum. The lat/long coordinates must be expressed in degrees including five or more decimal places (e.g., latitude 36.999221, longitude -109.044883).

LATITUDE
39° 02'48.5"N

LONGITUDE
119°43'36.50"W



**IF THERE ARE MORE THAN ONE SET OF LAT/LONG COORDINATES, PROVIDE ON SEPARATE DOCUMENT AND ADD TO MAP SECTION OF BINDER.**

**C. STRUCTURE COORDINATES:**

- For projects that protect buildings or other facilities, provide coordinates for each structure at either the front door of the structure or the intersection of the public road and driveway that is used to access the property.
- For large activity areas, such as detention basins or vegetation management projects, the location must be described by three or more coordinates that identify the boundaries of the project.
- The polygon created by connecting the coordinates must encompass the entire project area.

Map is attached.

**D. STAGING AREA:**

Describe the project staging area. This is the area where the project equipment, materials and/or debris will be staged. Include a vicinity map with the proposed staging area(s) in the map section of the binder.

Map is attached.



**AERIAL MAP(S) OF STAGING AREA(S) MUST BE INCLUDED IN SUBAPPLICATION.**

**E. SITE PHOTOS:**

- A minimum of three ground photos per project site are required. Include in photo section of the binder.

**F. MAPPING REQUIREMENTS:**

Provide the following mapping elements in the map section of the binder:

- If project area has been mapped using GIS software, include the completed Shapefiles in electronic versions of full application.
- Include a vicinity map of the general area showing major roads. Aerial photographs may be used as vicinity maps.
- Prominently mark the project location on the vicinity map.
- Provide a detailed project map that clearly identifies the project boundaries.
- Project map must show all lat/long coordinates provided in the project description.
- Vicinity map and the project map must both have a north arrow and scale.



**SEND ONLY ELECTRONIC VERSIONS OF MAPS.**

**G. PUBLIC ASSISTANCE (PA) PROGRAM FUNDING:**

List any Public Assistance Disaster Survey Reports (DSR) or Project Worksheets (PWs) that were completed at the project location from previous disasters. List all current engagement with PA for this current disaster and include date(s) if known:

n/a
-----

**H. DEED RESTRICTIONS THAT LIMIT FEDERAL FUNDING:**

Is there a deed restriction or permanent conservation easement on the property at the project site that would prohibit federal disaster funding (e.g., a previously FEMA funded acquisition of a structure on this property)? If yes, describe in detail.

no
----

**13. PROJECT DESCRIPTION:**

**A. APPLICATION TYPE:**

- Project    5% Activity

*5% activities are defined as mitigation actions that are consistent with your local hazard mitigation plan and meet all HMGP requirements, but may be difficult to conduct a standard BCA to prove cost-effectiveness. Examples: early earthquake warning system, back-up generators for critical facilities, public awareness campaign, mitigation specific community outreach activities.*

**B. PROJECT TYPE:**

Select at least one project type; select as many as needed to accurately describe project.

<input type="checkbox"/> EARTHQUAKE	<input type="checkbox"/> FIRE	<input checked="" type="checkbox"/> FLOOD	<input type="checkbox"/> OTHER
<input type="checkbox"/> CODE ENFORCEMENT	<input type="checkbox"/> DEFENSIBLE SPACE	<input type="checkbox"/> ACQUISITION	<input type="checkbox"/> CRITICAL FACILITY GENERATOR(S)
<input type="checkbox"/> NON-STRUCTURAL	<input type="checkbox"/> FIRE RESISTANT BUILDING MATERIALS	<input type="checkbox"/> DRY FLOOD PROOFING	<input type="checkbox"/> DROUGHT <input type="checkbox"/> TSUNAMI

**Agenda Item #5d**

<input type="checkbox"/> STRUCTURAL	<input type="checkbox"/> FIRE VEGETATION MANAGEMENT	<input checked="" type="checkbox"/> FLOOD CONTROL	<input type="checkbox"/> WIND
<input type="checkbox"/> NON-STRUCTURAL & STRUCTURAL	<input type="checkbox"/> SOIL STABILIZATION	<input type="checkbox"/> ELEVATION	<input type="checkbox"/> OTHER: <input style="width: 100%;" type="text"/>
<input type="checkbox"/> <a href="#">CLIMATE RESILIENCY MITIGATION ACTION</a> (CRMA): Projects that mitigate risk through restoration of the natural environment			

**C. DESCRIBE PROBLEM/HAZARDS/RISKS:**

Describe the problem this project is attempting to solve and the expected outcome. Describe the hazards and risks to life, safety and any improvements to property in the project area for at least the last 25 years. Describe in detail how the project reduces hazard effects and risks.

The risk of property being affected by flash flooding in Johnson Lane is high. Some houses experience flooding and several landscaped areas are destroyed by water and sediment carried down from the Pinenut Mountains during these events. There is documentation going back to 1992 on the flash flooding events that have occurred in the area. The Johnson Lane Area Drainage Master Plan (ADMP) attempts to alleviate many of these hazards. The Hot Springs-Buckbrush system is one of the major systems identified in the ADMP to reduce flood impacts from downstream properties.

**D. DESCRIBE RECENT EVENTS THAT INFLUENCED THE SELECTION OF THIS PROJECT:**

Describe recent events (e.g. changes in the watershed, discovery of a new hazard, zoning requirements, inter-agency agreements, etc.) that influenced the selection of this project.

The County is working with the Bureau of Land Management to complete the National Environmental Policy Act (NEPA) and Environmental Assessment (EA). The Finding of No Significant Impact (FONSI) and right-of way grant will be issued within a few months for the projects identified in the ADMP. To date, funding has been identified for four detention basins in the plan, and no funding has been identified to construct the Hot Springs-Buckbrush System at this time.

**E. SCOPE OF WORK (SOW):**

**STATE EXACT SOW DOCUMENT TITLE:**

2\_Scope of Work Hot Springs-Buckbrush Flood Control Project

1. Describe the entire SOW of the project in clear, concise, ample detail.
2. Must provide a thorough description of **all tasks and activities** to be undertaken.
3. Must be written in sequential order from start to finish of the project.
4. Describe any land acquisition activities, and/or right-of-way or access easements that need to be obtained.
5. If structural, discuss how the structure/building/facility will be constructed or retrofitted.
6. Include building or structure dimensions, material types, depth and width of excavations, volume of materials excavated, type of equipment to be used, staging and parking areas, and any phasing of the project.
7. If any tunneling is proposed, describe the method and any temporary trenches or pits.
8. Describe any demolition activities that need to occur prior to construction or retrofitting.



**INSERT THIS DOCUMENT IN THE SOW ORDER OF YOUR ELECTRONIC DOCUMENTS.**

**F. HAS YOUR JURISDICTION PREVIOUSLY RECEIVED HMGP FUNDING?**

Yes  No  Unknown | If yes, provide disaster number(s):

**G. HAS YOUR JURISDICTION RECEIVED ANY OTHER FUNDING?**

## Agenda Item #5d

Describe all other funding received for this project and all other recent projects. Identify the funding source (i.e., Federal, State, Private, etc.).

Local County General Fund

### H. RELATED PROJECTS:

Describe any other projects or project components (whether or not funded by FEMA), which may be related to the proposed project, or are in (or near) the proposed project area. FEMA must look at all projects to determine a cumulative effect. FEMA reviews all interrelated projects under NEPA regulations.

There are four detention basins that will be constructed upstream of this area on Bureau of Land Management land (Stephanie, Romero, Chowbuck and Skyline). The NEPA review should be completed in July 2022.

### I. HAZARD ANALYSIS TYPE:

Select the hazard(s) below that this project will protect against. Select as many as needed.

- |  |   |   |  |
|--|---|---|--|
| <input type="checkbox"/> BIOLOGICAL      | <input type="checkbox"/> EARTHQUAKE       | <input type="checkbox"/> LAND SUBSISTENCE | <input type="checkbox"/> TERRORIST               |
| <input type="checkbox"/> CHEMICAL        | <input type="checkbox"/> FIRE             | <input type="checkbox"/> MUD/LANDSLIDE    | <input type="checkbox"/> TORNADO                 |
| <input type="checkbox"/> CIVIL UNREST    | <input type="checkbox"/> FISHING LOSSES   | <input type="checkbox"/> NUCLEAR          | <input type="checkbox"/> TOXIC SUBSTANCES        |
| <input type="checkbox"/> COASTAL STORM   | <input checked="" type="checkbox"/> FLOOD | <input type="checkbox"/> SEVERE ICE STORM | <input type="checkbox"/> TSUNAMI                 |
| <input type="checkbox"/> CROP LOSSES     | <input type="checkbox"/> FREEZING         | <input type="checkbox"/> SEVERE STORM(S)  | <input type="checkbox"/> WINDSTORM               |
| <input type="checkbox"/> DAM/LEVEE BREAK | <input type="checkbox"/> HUMAN CAUSE      | <input type="checkbox"/> SNOW             | <input type="checkbox"/> OTHER (describe below): |
| <input type="checkbox"/> DROUGHT         | <input type="checkbox"/> HURRICANE        | <input type="checkbox"/> SPECIAL EVENTS   |  |

### J. DESIGN PLANS:

If your project requires design plans, plans should be prepared to supplement the SOW. If the project involves ground disturbance, (e.g. enlarging ditches or culverts, diversion ditches, detention basins, storm water improvements, etc.) include the following:

- Scale:** Plans should be drawn to scale (e.g. 1" to 100' or 1" to 200') depicting the entire land parcel, showing buildings, improvements, underground utilities, other physical features, dimensions and cross sections.
  - Identification:** Indicate agency name, land owner, civil engineer, soil engineer, geologist, map preparer, and date of map preparation. Also, indicate the name of the project.
  - Legend/Orientation:** Include a legend explaining all lines and symbols. Identify property acreage and indicate direction with a north arrow (pointing to top or right hand side of the plan).
  - Dimensions:** Show property lines and dimensions. Also, show boundary lines of project and their dimensions if only a portion of the property is being utilized for the project.
  - Structures:** Identify all existing and proposed buildings and structures including storm drains, driveways, sidewalks and paved areas.
  - Utilities:** Indicate names and location of utilities on property (water, sewage, gas, electric, telephone, cable).
  - Roads/Easements:** Indicate location, names, and centerline of streets and recorded roads. Identify any utility, drainage or right-of-way easements on the property.
  - Drainage:** Show the location, width and direction of flow of all drainage courses on site.
  - Grading/Topographic Information:** Show existing surface contours on-site and bordering the property
  - Parking:** Show all construction parking and staging areas and provide dimensions.
  - Cross Sections:** Provide cross sections of proposed buildings, structures or other improvements, and any trenches, temporary pits or catchment basins.
- If applicable, provide studies and engineering documentation, including any Hydrology and Hydraulics (H&H) data.

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If applicable, provide drawings or blueprints that show the footprint and elevations.



**PLEASE SEND ELECTRONIC VERSIONS OF DESIGN PLANS, DRAWINGS OR BLUEPRINTS.**

**K. PROJECT ALTERNATIVES:**

Identify three project alternatives:

**1. ALTERNATIVE #1 – NO ACTION:**

Describe the No Action alternative below. The No Action alternative evaluates the consequences of taking no action and leaving conditions as they currently exist.

In 2014 and 2015 Johnson Lane residents experienced localized flash flooding, which inundated several properties with flood waters and mud. In 2018, Douglas County adopted the Johnson Lane Area Drainage Master Plan. The solutions are outlined in that plan. If no action occurs, additional flash flood events will continue to negatively impact properties.

**2. ALTERNATIVE #2 – PROPOSED ACTION:**

Describe the Proposed Action alternative below. The Proposed Action alternative is the proposed project to solve the problem. Explain why the proposed action is the preferred alternative. Identify how the preferred alternative will solve the problem, why the preferred alternative is the best solution for the community, why and how the alternative is environmentally preferred and why the project is the economically preferred alternative.

The hydrologic interaction and complexity of the Hot Springs Mountain washes and Buckbrush Wash necessitated the development of a series of conceptual basins, channels, and underground pipes to effectively mitigate the flooding and sedimentation hazards. This upstream collection and conveyance concept is also necessary to meet the primary objective for the Johnson Lane area which is to safely route stormwater flow through the community to the Carson River. The Hot Springs-Buckbrush system is the most complex. Past flooding records and the sediment engineering task from the ADMP both suggest that the Hot Springs Mountain washes convey a significant volume of sediment to the Johnson Lane community. The most efficient way to mitigate the hazard is to capture the sediment volume upstream in a series of 100-year storm designed basins, then capture the water volume in basins downstream.

**3. ALTERNATIVE #3 – SECOND ACTION ALTERNATIVE:**

Describe the Second Action alternative below. The Second Action alternative described must also solve the described problem. State why this alternative wasn't chosen. It must be a viable project that could be substituted in the event the proposed action is not chosen.

The second most efficient way to mitigate the hazard is to capture the sediment volume upstream in a series of 25-year storm designed basins, then capture the water volume in basins downstream. This option wasn't chosen because the results from the ADMP indicate that the Hot Springs-Buckbrush System 100-year basins provide enough additional protection to be prioritized over the 25-year basins.

<b>WORK SCHEDULE INFORMATION</b>
----------------------------------

**14. PROJECT WORK SCHEDULE:**

The intent of the work schedule is to provide a realistic appraisal of the time and components required to complete the project.

- Describe each of the major work elements and milestones in the description section below.
- Project subapplication examples are: construction, architectural, design, engineering, inspection, testing, permits, project management, mobilization and de-mobilization.
- State the total timeframe anticipated for each of the work elements.
- State the total timeframe anticipated to complete the project.
- Work schedule must mirror SOW, budget and BCA.OPTIONAL: Provide the work schedule in GANTT chart form as supplemental documentation in the work schedule section of the binder Include this information as an example.

WORK SCHEDULE EXAMPLE		
#	DESCRIPTION	TIMEFRAME
1.	Kick-off, 90% design meetings	3 months
2.	Final contract drawing development	5 months
3.	Open bids and award contract	4 months
4.	Construction – Mobilization	5 months
5.	Construction – Demolition	4 months
6.	Construction – Concrete and conduit work	2 months
7.	Construction – Trenching	2 weeks
8.	Construction – Utility relocation	4 months
9.	Construction – Electrical Installation	1 month
10.	Construction – Site Restoration	1 week
11.	Construction – Complete punch list	2 months
12.	Construction – Demobilization	1 week
13.	Project Close-out and record drawings	2 months
14.	Grant Close out	3 months
<b>TOTAL MONTHS:</b>		<b>36 months</b>



**TOTAL PROJECT DURATION (INCLUDING CLOSE-OUT) MUST NOT EXCEED A 36 MONTH PERIOD OF PERFORMANCE (POP).**

#	DESCRIPTION	TIMEFRAME
1.	Grant awarded	Jan 2023
2.	Solicit proposals for bringing the 15% design plans of the Hot Springs-Buckbrush System up to 100% design plans for construction on Douglas County’s right-of-way granted from the Bureau of Land Management for the 100-year design storm.	March 2023
3.	Complete the 100% design plans on the Hot Springs-Buckbrush System for the 100-year design storm.	March 2024
4.	Compile construction bid documents and solicit bids	June 2024
5.	Begin construction	August 2024
6.	Complete construction	October 2025
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.	Project Close-out	Jan 2026



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<b>19.</b>	<b>STANDARD VALUE (DO NOT CHANGE)</b>	Grant Close-out	3 months
<b>TOTAL MONTHS:</b>			36 months

If more lines are needed than provided, indicate the title of document in box 1 and attach a separate work schedule in the schedule section of binder.

**COST ESTIMATE INFORMATION**

**15. HMGP COST ESTIMATE SPREADSHEET:**

**A. COST ESTIMATE INSTRUCTIONS:**

Using the [HMGP Cost Estimate Spreadsheet](#), provide a detailed cost estimate breakdown.

- Cost estimate describes the anticipated costs associated with the SOW for the proposed mitigation activity. Cost estimates must include detailed estimates of cost item categories.
- Only include costs that are directly related to performing the mitigation activity. If additional work, such as remodeling, additions, or improvements are being done concurrently with the mitigation work, do not include these costs in the submitted budget.
- Documentation that supports the budget must be attached to the subapplication in the budget section of the binder.
- Total costs must be consistent with the requested federal share plus the matching funds and must be consistent with the project cost in the Benefit Cost Analysis (BCA), SOW and work schedule.

HMGP COST ESTIMATE SPREADSHEET EXAMPLE					
#	ITEM NAME	Unit Qty	UNIT	UNIT COST	COST EST TOTAL
1.	Pre-Award Costs: Develop BCA	4	HR	\$150	\$600
2.	Temp. Inlet Filter Rolls	4	EA	\$250	\$1000
3.	Temp. Fiber Roll	1850	LF	\$3	\$5550
4.	Hydraulic Mulch	1000	SQYD	\$2	\$2000
5.	Plane Asphalt Concrete Pavement	650	SQYD	\$22	\$14300
6.	Street Sweeping for 30 days	30	EA	\$350	\$10500
7.	Roadway Excavation	70	CY	\$40	\$2800
8.	Aggregate Base, Class 2	210	CY	\$75	\$15750
9.	Remove Concrete Pavement	650	SQYD	\$340	\$10540
10.	Asphalt Concrete, Type B	180	TON	\$150	\$27000
11.	Asphalt Concrete, Leveling	10	TON	\$300	\$3000
12.	Asphalt Concrete Dike, Type A	235	LF	\$15	\$3525
13.	Asphalt Concrete Dike, Type F	125	LF	\$8	\$120
14.	Place Asphalt Concrete	15	SQFT	\$8	\$120
15.	18" Corrugated Steel Pipe Riser	5	LF	\$125	\$625
16.	24" Reinforced Concrete Pipe	275	LF	\$170	\$46750
17.	84" Reinforced Concrete Pipe Install	572	LF	\$400	\$228800
18.	Precast Triple Concrete Box Culvert	44	LF	\$1500	\$66000
19.	Curb Inlet - Type B-1 (L=9')	1	EA	\$6000	\$6000
20.	Curb Inlet - Type B-1 (L=13')	1	EA	\$6300	\$6300
21.	Curb Inlet - Type B-1 (L=15')	1	EA	\$6800	\$6800
22.	Storm Drain Cleanout - Type A-8	3	EA	\$7500	\$22500
23.	8" PVC Sewer	89	LF	\$100	\$8900
24.	Cellular Block (Precast)	4100	SQFT	\$20	\$82000
25.	Project Identification Sign	2	EA	\$1000	\$2000
<b>Total Project Cost Estimate:</b>					<b>\$573480</b>

**B. INELIGIBLE COSTS:**

The following are ineligible line items:

- Lump Sums
- "Other" Costs
- Cents (must use whole dollar amounts, round unit prices up to whole dollars)
- Contingency Costs
- Indirect Charges
- Miscellaneous Costs
- Overhead Costs

**C. PRE-AWARD COSTS:**

Eligible pre-award costs are costs incurred after the disaster date of declaration, but prior to grant award. Pre-award costs directly related to developing the application may be funded.

- Developing a BCA
- Submission of subapplication
- Workshops or meetings related to development
- Preparing design specifications
- Gathering environmental and historic data



**Subapplicants who are not awarded funds will not receive reimbursement for pre-award costs.**

**D. COST ESTIMATE NARRATIVE:**

FEMA requires a cost estimate narrative that explains all projected expenditures in detail. The cost estimate narrative is intended to mirror the cost estimate spreadsheet and should include a full detailed narrative to support the cost estimates listed in the HMGP Project Cost Estimate Spreadsheet. If your cost estimate includes City, County, or State employees' time (your agency), include personnel titles and salary/hourly wages plus benefits for a total hourly cost. Detailed timesheets must be retained.

Title the document "Cost Estimate Narrative" and include in the budget section of the binder.

**16. FEDERAL/NON-FEDERAL SHARE INFORMATION:**

**A. FUNDING RESTRICTIONS:**

FEMA will contribute up to 90 percent of the total project cost. A minimum of 10 percent of the total eligible costs must be provided from a non-federal source. State does not contribute to local cost share.

**For example:** for a \$100,000 total project cost, the federal requested share (90 percent) would be \$90,000. The non-federal match share (10 percent) provided would be \$10,000.

A jurisdiction may contribute an amount greater than the 10 percent non-federal share.

**B. TOTAL PROJECT COST ESTIMATE:**

\$8,139,600
-------------

Enter total cost formulated on [HMGP Cost Estimate Spreadsheet](#) ENTER \$ IN BOX ABOVE



**VERIFY ALL AMOUNTS ENTERED ARE ACCURATE.**

**INCORRECT AMOUNTS WILL DELAY PROCESSING OF YOUR SUBAPPLICATION.**

<b>FEDERAL SHARE (75% MAXIMUM)</b>	REQUESTED AMOUNT:	\$7,325,640
		ENTER \$ IN BOX ABOVE
<b>NON-FEDERAL SHARE (25% MINIMUM)</b>	PERCENTAGE AMOUNT:	90%
		ENTER % IN BOX ABOVE

<b>FEDERAL SHARE (75% MAXIMUM)</b>	REQUESTED AMOUNT:	\$813,960
		ENTER \$ IN BOX ABOVE
<b>NON-FEDERAL SHARE (25% MINIMUM)</b>	PERCENTAGE AMOUNT:	10%
		ENTER % IN BOX ABOVE

**C. NON-FEDERAL MATCH SOURCE: MATCH COMMITMENT LETTER:**

Use the [Local Match Commitment Letter Template](#) to complete this section and add completed letter to the match section of the binder.

- A signed Match Commitment Letter must be provided on agency letterhead.
- The non-federal source of matching funds must be identified by name and type.
- If "other" is selected for funding type, provide a description.
- Provide the date of availability for all matching funds.
- Provide the date of the Funding Match Commitment Letter.
- The funds must be available at the time of submission unless prior approval has been received from NV DEM.
- If there is more than one non-federal funding source, provide the same information for each source on an attached document.
- Match funds must be in support of cost items listed in the cost estimate spreadsheet.
- Requirements for donated contributions can be found in 2 CFR 200.306.

**BENEFIT/COST EFFECTIVENESS INFORMATION**


**17. BENEFIT/COST EFFECTIVENESS INFORMATION**

**A. BCA INSTRUCTIONS:**

FEMA will only consider subapplications from subapplicants that use a FEMA-approved methodology to conduct the Benefit Cost Analysis (BCA). BCA must be legible, complete and well-documented.

- Project BCAs must demonstrate cost-effectiveness through a Benefit Cost Ratio (BCR) of 1.0 or greater.
- Projects with a BCR of less than 1.0 will not be considered for funding.
- Total project cost must be used in the BCA.
- Maintenance of a completed HMGP project is not an eligible reimbursement activity, but must be included in the BCA.

BCA Version 6.0 is the only software that is allowed for conducting a BCA. Some project types may qualify for pre-calculated benefits. Additional information on the BCA Toolkit is available at: <https://www.fema.gov/benefit-cost-analysis>.

 The FEMA BCA Technical Assistance Helpline is available to provide assistance with FEMA’s BCA software by calling 1-855-540-6744 or via email at [BCHelpLine@FEMA.dhs.gov](mailto:BCHelpLine@FEMA.dhs.gov). The FEMA helpline is only to be utilized for technical assistance questions. The FEMA helpline will not verify the accuracy of your BCA.

**B. BCA INFORMATION:**

Once the BCA is completed, enter information requested below.

- |  |              |
|--|--------------|
| <b>1. NET PRESENT VALUE OF PROJECT BENEFITS:</b> | \$17,199,009 |
| <b>2. TOTAL PROJECT COST ESTIMATE:</b>           | \$8,263,690  |
| <b>3. BENEFIT COST RATIO:</b>                    | 2.08         |

**C. ANALYSIS TYPE:**

- |  |                                   |   |                                     |
|--|-----------------------------------|---|-------------------------------------|
| <input checked="" type="checkbox"/> FLOOD                  | <input type="checkbox"/> WILDFIRE | <input type="checkbox"/> EXEMPT (5% PROJECTS) | <input type="checkbox"/> EARTHQUAKE |
| <input type="checkbox"/> HURRICANE WIND                    | <input type="checkbox"/> DROUGHT  | <input type="checkbox"/> PRE-CALCULATED       | <input type="checkbox"/> LANDSLIDE  |
| <input type="checkbox"/> DAMAGE FREQUENCY ASSESSMENT (DFA) |                                   |   |                                     |

**D. ANALYSIS DATE (date BCA was conducted):** 7/7/2022

**E. PROVIDE BCA ELECTRONIC COPIES IN FORMAT DESCRIBED BELOW:**

- Provide An electronic copy of the report in the BCA section of the binder and all backup documentation for information used in the BCA.

**MAINTENANCE ASSURANCE INFORMATION**

**18. PROJECT MAINTENANCE INFORMATION:**

**A. MAINTENANCE ASSURANCE LETTER:**

- Using the [Project Maintenance Letter Template](#), identify all maintenance activities required to preserve the long-term mitigation effectiveness of the project.
  - Examples of maintenance include: inspection of the project, cleaning and grubbing, trash removal, replacement of worn out parts, etc.
  - Attach a maintenance schedule, estimated annual costs, and a signed maintenance commitment letter for the useful life of the project.

**NATIONAL FLOOD INSURANCE PROGRAM (NFIP)**

**19. NFIP INFORMATION:**

***i* CONTACT YOUR COUNTY OR LOCAL FLOODPLAIN ADMINISTRATOR FOR NFIP INFORMATION.**

**A. NFIP PARTICIPATION:**

1. Is the jurisdiction where the project is located participating in the NFIP? YES  NO 
  - a. If yes, are they in good standing? YES  NO
  - b. If no, explain:

**B. PROJECT LOCATION:**

1. Is this project located in a floodplain or floodway designated on a FEMA Flood Insurance Rate Map (FIRM)? YES  NO 
  - a. Mark the project location on the FIRM and attach to subapplication in the maps section of the binder.
2. Provide the following information for the location of the project:
  - a. FIRM panel number:
  - b. FIRM zone designations:
  - c. NFIP community ID number:

- C. LAST [COMMUNITY ASSISTANCE VISIT \(CAV\)](#) DATE:**

**ENVIRONMENTAL INFORMATION**

**20. ENVIRONMENTAL INFORMATION:**

**A. FEMA ENVIRONMENTAL CHECKLIST:**

- Complete the [FEMA Site Information, Environmental Review, and Checklist](#) and attach to the environmental section of the binder. Provide a detailed response to each question. Attach supporting documentation in compliance with [FEMA's frontloading requirements](#).

## PRINT THIS PAGE – ORIGINAL SIGNATURE IS REQUIRED

### PROJECT CONDITIONS

Indicate by checking each box below that you will adhere to these listed project conditions.

- If during implementation of the project, ground-disturbing activities occur and artifacts or human remains are uncovered, all work will cease and FEMA, NV DEM, and the State Historic Preservation Officer (SHPO) will be notified.
- If deviations from the approved scope of work result in design changes, the need for additional ground disturbance, additional removal of vegetation, or will result in any other unanticipated changes to the physical environment, FEMA will be contacted and a re-evaluation under NEPA and other applicable environmental laws will be conducted.
- If wetlands or waters of the U.S. are encountered during implementation of the project, not previously identified during project review, all work will cease and FEMA will be notified.
- Due to the Federally mandated Environmental and Historic Preservation (EHP) review; no construction will occur for this project prior to FEMA and NV DEM approval.

### AUTHORIZATION

The undersigned does hereby submit this subapplication for financial assistance in accordance with the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program (HMGP) and the State Hazard Mitigation Administrative Plan and certifies that the subapplicant (e.g., organization, city, or county) will fulfill all requirements of the program as contained in the program guidelines and that all information contained herein is true and correct to the best of our knowledge.

Subapplicant Authorized Agent

**NAME:** \_\_\_\_\_

**TITLE:** \_\_\_\_\_

**ORGANIZATION:** \_\_\_\_\_

**SIGNATURE:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

Agenda Item #5d

**Cost Narrative:**

Estimate to construct Hot Springs-Buckbrush Flood Control Project

Design and permitting costs: \$1,356,600 (This number was derived from the Johnson Lane Area Drainage Master Plan.) This line item will be subcontracted out to Lumos and Associates to take the 15% conceptual design plans to 100% design plans to be put out to bid for construction. The permitting will be obtained by Douglas County for 401 Water Quality permitting through NDEP, 404 permitting through the ACOE and the Site Improvement Permit from Douglas County.

<b>Figure 9-1 Label</b>	<b>Lumos Label and Detail Sheet ID</b>	<b>100-Year Construction Cost Estimate</b>	<b>100-Year Design and Permitting Cost Estimate</b>	<b>100-Year TOTAL Cost Estimate</b>
Southeast Diversion Channel	SE_Diversion C18	\$384,000	\$76,800	\$460,800
Southcentral Wash Sediment Basin	Southcentral C4.1	\$663,000	\$132,600	\$795,600
Southcentral Diversion Channel	SC_Diversion C16	\$236,000	\$47,200	\$283,200
Southeast Wash Sediment Basin	Southeast C7.1	\$666,000	\$133,200	\$799,200
Southcentral Outflow Channel	SC_Basin Outflow C17	\$555,000	\$111,000	\$666,000
Southeast Outflow Channel	SE_Basin Outflow C17	\$316,000	\$63,200	\$379,200
Buckbrush Wash Sediment Basin	Buckbrush C6.1	\$652,000	\$130,400	\$782,400
Buckbrush Basin Outflow Channel	Buckbrush Basin Outflow Channel C15, C16	\$239,000	\$47,800	\$286,800
Johnson Lane Park Detention Basin	Johnson Lane Park C5.1	\$2,969,000	\$593,800	\$3,562,800
<i>Not Shown in Figure</i>	SC_West Diversion C4.0, C4.1	\$103,000	\$20,600	\$123,600
<b>TOTALS</b>		<b>\$6,783,000</b>	<b>\$1,356,600</b>	<b>\$8,139,600</b>

## Agenda Item #5d

Construction costs: \$6,783,000 (This number was derived from the Johnson Lane Area Drainage Master Plan.) The construction costs will be paid to the contractor who is selected for the project based on the lowest bid.

Project Total: \$8,139,600

Funding Request - \$7,325,640 (90%)

Match - \$813,960 (Nonfederal funds - funded) (10%)



Agenda Item #5d

## HMGP Cost Estimate Spreadsheet

DATE	JURISDICTION NAME	DISASTER & PROJECT OR PLANNING #	PROJECT OR PLANNING TITLE
7/7/2022	Douglas County, NV	covid	Hot Springs-Buckbrush Flood Control Project

#	Item Name	Unit Quantity	Unit of Measure	Unit Cost	Cost Estimate Total
1	Southeast Diversion Channel Design	1	EA	\$ 76,800.00	\$ 76,800.00
2	Southeast Diversion Channel Construction	1	EA	\$ 384,000.00	\$ 384,000.00
3	Southcentral Wash Sediment Basin Design	1	EA	\$ 132,600.00	\$ 132,600.00
4	Southcentral Wash Sediment Basin Construction	1	EA	\$ 663,000.00	\$ 663,000.00
5	Southcentral Diversion Channel Design	1	EA	\$ 47,200.00	\$ 47,200.00
6	Southcentral Diversion Channel Construction	1	EA	\$ 236,000.00	\$ 236,000.00
7	Southeast Wash Sediment Basin Design	1	EA	\$ 133,200.00	\$ 133,200.00
8	Southeast Wash Sediment Basin Construction	1	EA	\$ 666,000.00	\$ 666,000.00
9	Southcentral Outflow Channel Design	1	EA	\$ 111,000.00	\$ 111,000.00
10	Southcentral Outflow Channel Construction	1	EA	\$ 555,000.00	\$ 555,000.00
11	Southeast Outflow Channel Design	1	EA	\$ 63,200.00	\$ 63,200.00
12	Southeast Outflow Channel Construction	1	EA	\$ 316,000.00	\$ 316,000.00
13	Buckbrush Wash Sediment Basin Design	1	EA	\$ 130,400.00	\$ 130,400.00
14	Buckbrush Wash Sediment Basin Construction	1	EA	\$ 652,000.00	\$ 652,000.00
15	Buckbrush Basin Outflow Channel Design	1	EA	\$ 47,800.00	\$ 47,800.00
16	Buckbrush Basin Outflow Channel Construction	1	EA	\$ 239,000.00	\$ 239,000.00
17	Johnson Lane Park Detention Basin Design	1	EA	\$ 593,800.00	\$ 593,800.00
18	Johnson Lane Park Detention Basin Construction	1	EA	\$2,969,000.00	\$ 2,969,000.00
19	Southcentral West Diversion Design	1	EA	\$ 20,600.00	\$ 20,600.00
20	Southcentral West Diversion Construction	1	EA	\$ 103,000.00	\$ 103,000.00
21					\$ -
22					\$ -
23					\$ -
24					\$ -
25					\$ -
26					\$ -
27					\$ -
28					\$ -
29					\$ -
30					\$ -
31					\$ -
32					\$ -
33					\$ -
34					\$ -
35					\$ -
36					\$ -
37					\$ -
38					\$ -
39					\$ -
40					\$ -
<b>Total Project Cost Estimate:</b>					<b>\$ 8,139,600.00</b>

## **Advancing Hazard Mitigation in Nevada through Earthquake Early Warning Research and Planning**

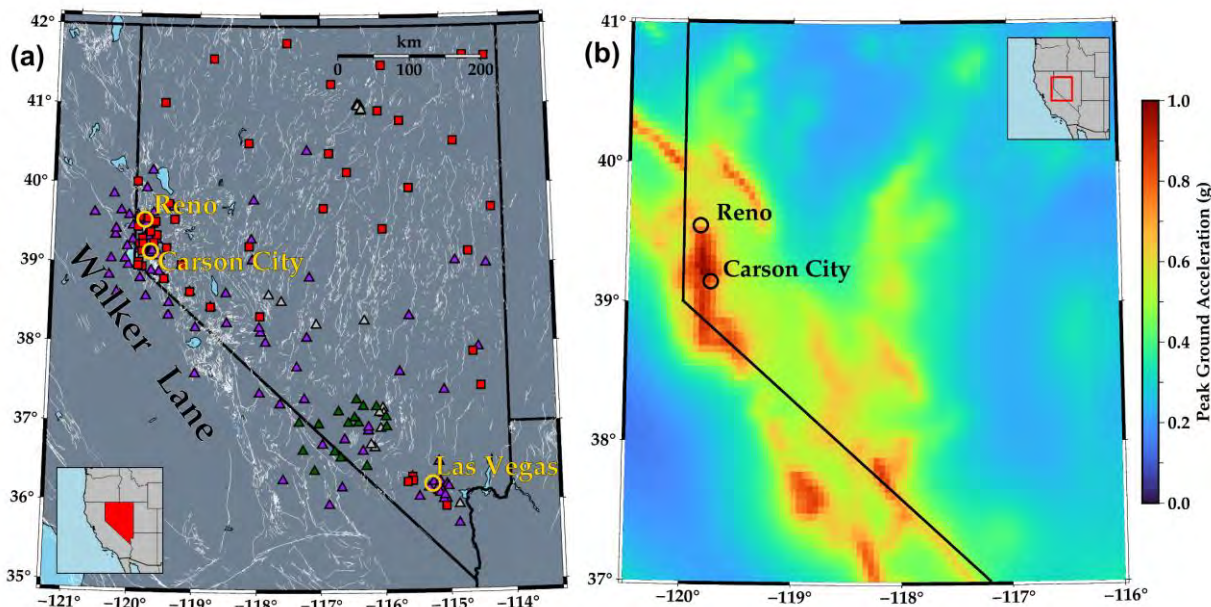
Daniel T. Trugman, Graham M. Kent, Emily A. Morton  
Nevada Seismological Laboratory, University of Nevada, Reno

The practice of earthquake early warning (EEW) is perhaps the most public-facing aspect of seismology. After years of coordinated development and testing (Allen, 2007; Allen & Kanamori, 2003; Böse et al., 2014; Kuyuk et al., 2014), the ShakeAlert system is now fully operational (Kohler et al., 2020) for residents in the states of California, Oregon, and Washington. At its core, the objective of ShakeAlert is to provide users timely alerts of impending strong shaking so that they can prepare as best as possible. Large user groups like hospitals, utility providers, and infrastructure or transportation networks can in principle automate immediate mitigatory procedures, while individual users can attempt to take themselves out of harm's way through drop, cover and hold on tactics (i.e., Great Nevada Shakeout exercises put to practice). In this way, earthquake early warning has become a new but critical frontier in hazard mitigation.

Notably absent from current ShakeAlert operations is the state of Nevada (Figure 1), which is one of the most seismically active in United States, with major population centers in the western portion of the state that are exposed to significant earthquake hazards (Anderson et al., 2019). Paleoseismic and historical records, combined with observations of contemporary geodetic deformation and earthquake occurrence patterns, suggest that damaging earthquakes with magnitude M6 and larger will likely impact these regions in the near future (Bormann et al., 2016; Pierce, 2022; Ruhl et al., 2016). Indeed, several large earthquakes have occurred over the past five years throughout the Walker Lane, a zone of active deformation spanning the California-Nevada border (Faulds et al., 2005; Faulds & Henry, 2008; Wesnousky et al., 2012), including the 2019 Ridgecrest (Trugman, 2020; Trugman et al., 2020), 2020 Monte Cristo (Bormann et al., 2021; Ruhl et al., 2021), and 2021 Antelope Valley (Goldberg et al., 2022; Pollitz et al., 2022) events. While these earthquakes fortunately have occurred in areas of low population density, there is no guarantee this pattern will hold moving forward. The time is now to advance earthquake hazard mitigation strategies to Nevada.

The overarching objective of this project is to perform the necessary research and groundwork to compile a detailed EEW implementation plan for the state of Nevada. Once completed, this plan could be directly incorporated as a keystone of the broader State Hazard Mitigation Plan. Our work package for this project consists of three main steps: (1) an inventory and assessment of existing network equipment and its suitability for EEW, (2) a compilation of high-risk earthquake source and rupture scenarios and their implications for EEW in terms of warning time and expected levels of ground motion, and (3) a synthesis of these findings into a detailed implementation plan that summarizes key findings and outlines necessary steps to get EEW of the ground in the state of Nevada. We describe these steps in greater detail in the

following paragraphs. The work will be performed primarily by PI Trugman and his graduate research assistant (GRA), with additional coordination and mentoring by Co-PIs Kent and Morton who have significant expertise in earthquake monitoring in Nevada.



**Figure 1.** Overview of earthquake hazards in Nevada. (a) Region map, including NSN broadband, short period, and restricted stations (purple, green, and gray triangles), ALERTWildfire camera stations (red squares), and quaternary faults (white thin lines). Fire camera sites without existing broadband stations would be high-priority targets for network upgrades. (b) 50-year 2%-level PGA hazard map for northwest Nevada (data from Petersen et al., 2020). Earthquake hazards are concentrated near Reno and Carson City and are comparable to typical urban centers in California.

The first phase of the project will focus on the seismic network and operational aspects of an EEW system. There are several important considerations along this line that we will quantify. The effectiveness of an EEW system will depend in large part on (e.g., Allen & Melgar, 2019): (i) the density of monitoring stations, especially near active faults, (ii) the reliability of those stations in recording strong ground motions and removing contaminating noise sources, and (iii) the efficiency of those stations in transmitting their observations to a processing center where alert calculations can be performed in a timely manner and potentially disseminated. With this in mind, we will inventory the sensors and communication infrastructure operated by the Nevada Seismological Laboratory (NSL) for their suitability in EEW. In partnership with the USGS Advanced National Seismic System (ANSS), the NSL has undertaken a concerted effort over the past 20 years to modernize and expand regional earthquake and fire monitoring capabilities (Kent et al., 2015; Smith et al., 2016). While some of these sites feature strong-motion and broadband sensors comparable to those that comprise the backbone of ShakeAlert (indeed, the NSL operates many ShakeAlert stations along the CA-NV border), other points of presence are still deficient or only include fire camera technology and not seismic sensors.

During this stage of the project, we will also quantify data latencies at each site in terms of processing and transmission of waveform packet summaries to the NSL. While latencies in modern networks are typically less than 10s, every second counts in EEW and unexpected problems can arise during active earthquake sequences, as was the case during Ridgecrest in 2019 (Chung et al., 2020; Stubailo et al., 2020). Similarly, persistent noise sources are sometimes present near different sensors and can hinder EEW system performance through false triggers that activate alerts for non-earthquake events (Li et al., 2018; Meier et al., 2019). Because of this, we will quantify noise levels at each potential site in order to determine which if any need to be excluded or modified for real-time monitoring applications. Also during this phase of the project, we will visit ShakeAlert partners in California (Caltech and Berkeley) to better understand their operational system and how it could inform early warning in Nevada.



**Figure 2.** A combined earthquake early warning ShakeAlert and ALERTWildfire station in the Tahoe basin near Dollar Point, California

The second phase of the project aims to identify key earthquake rupture scenarios relevant to EEW in Nevada in order to anticipate how an EEW system could help mitigate earthquake-related losses. To do this, we will compile a list of active faults that are close enough



## Agenda Item #5e

to population centers to pose a significant threat. As earthquake hazard is concentrated in the western half of the state, some of these faults will extend into or be located entirely in California. For example, the Death Valley fault system is of primary concern for Las Vegas, while the Reno-Carson-Tahoe area features several faults crossing state lines (Wesnousky, 2005) in addition to more local sites.

With these keystone faults identified, we will develop probabilistic models that quantify the range of warning times and levels of ground motion expected at major cities. These calculations will test a range of network configuration scenarios, from both the current “as-is” station distribution to potential future distributions pending additional station installations. Likewise, our calculations will need to account for both uncertainty in the size of major earthquakes on each fault (which cannot be determined a-priori) and the natural variability in strong ground motion, which can exceed a factor of two during a single earthquake at a fixed distance to the source (Atik et al., 2010; Douglas & Edwards, 2016). For each hypothetical rupture, we will examine a range of hypocentral locations and rupture sizes, and use existing empirical ground motion models designed for active crustal faults in the western US (Abrahamson et al., 2014; Boore et al., 2014; Campbell & Bozorgnia, 2014; Chiou & Youngs, 2014) to compute ground motion intensity metrics. These calculations, once completed, will provide a realistic and quantitative assessment to how EEW would contribute to hazard mitigation in the state.

The third and final phase of the project will synthesize and combine the findings from the network and rupture scenario analyses to develop an EEW implementation plan for use in Statewide Hazard Mitigation Planning documents. This plan will include prioritized recommendations for network upgrades that enumerate high-leverage sites where new or upgraded station installations would demonstrably improve performance of a future EEW system. New installations could, for example, take advantage of existing infrastructure from fire camera sites. The plan will also summarize our findings related to station resilience, latency, and noise characteristics which will set realistic expectations for EEW stakeholders in the state. Likewise, our rupture scenario analyses will provide essential cost-benefit information for planning purposes through its quantification of warning times and ground motion intensity for the most important earthquake hazards confronting the state. In addition, by comparing predictions from existing ground motion models to recent observations, we can assess whether new, Nevada-specific models are necessary. In Nevada, earthquake hazard is acute and even comparable to the western states where EEW is already operational. This project, if awarded would dramatically advance our readiness to mitigate earthquake damage in the years to come.

## References

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# HAZARD MITIGATION GRANT PROGRAM PLANNING SUBAPPLICATION

**DISASTER NUMBER:**

DR-4523

**JURISDICTION NAME:**

UNR - Seismological Laboratory

**PLAN TITLE:**

Advancing Hazard Mitigation in Nevada  
through Earthquake Early Warning Research  
and Planning

**CONTROL NUMBER:**

THE CONTROL NUMBER IS RECEIVED AT TIME OF SUCCESSFUL NOI SUBMITTAL



**Notice of Interest (NOI) approved subapplications  
are due postmarked to NV DEM by:  
DR-4523: Sept 02, 2022**

## PLANNING SUBAPPLICATION FORM

### SUBAPPLICANT INFORMATION

1. **SUBAPPLICANT:** BOR, Nevada System of Higher Education, obo University of Nevada Reno  
NAME OF STATE AGENCY, TRIBAL GOVERNMENT, LOCAL GOVERNMENT, OR SPECIAL DISTRICT APPLYING FOR FUNDING

2. **TYPE:** STATE/LOCAL GOVERNMENT  TRIBAL GOVERNMENT  SPECIAL DISTRICT

3. **FIPS #:** 031 IF YOU DO NOT KNOW YOUR FEDERAL IDENTIFICATION PROCESSING SYSTEM NUMBER (FIPS #), REQUEST BY EMAILING [jwoodward@dps.state.nv.us](mailto:jwoodward@dps.state.nv.us)

4. **DUNS #:** 146515460 IF YOU DO NOT KNOW YOUR DATA UNIVERSAL NUMBERING SYSTEM (DUNS) #, CALL DUN & BRADSTREET (D&B) @ 1-866-705-5711 OR VISIT WWW.SAM.GOV

5. <b>POLITICAL DISTRICT NUMBERS:</b>	CONGRESSIONAL:	2	<small>PROVIDE ONLY THE NUMBERS OF THE POLITICAL DISTRICTS FOR THE SUBAPPLICANT</small>
	STATE ASSEMBLY:	24	
	STATE LEGISLATIVE:	13	

6. **PRIMARY CONTACT:**  
POINT OF CONTACT FOR YOUR PLAN. NV DEM WILL CONTACT THIS PERSON FOR QUESTIONS AND/OR REQUESTS FOR INFORMATION

**NAME:** X Mr.  Ms. **FIRST:** Daniel **LAST:** Trugman

**TITLE:** Assistant Professor

**ORGANIZATION:** Nevada Seismological Laboratory

**ADDRESS:** 1664 N. Virginia Street

**CITY:** Reno **STATE:** NV **ZIP CODE:** 89557-0172

**TELEPHONE:** 775 784 6256 **FAX:** N/A

**EMAIL:** dtrugman@unr.edu

7. **ALTERNATIVE CONTACT:**  
BACK-UP POINT OF CONTACT FOR YOUR PLAN. NV DEM WILL CONTACT THIS PERSON IF PRIMARY CONTACT IS UNAVAILABLE

**NAME:** X Mr.  Ms. **FIRST:** Graham **LAST:** Kent

**TITLE:** Network Director and Professor

**ORGANIZATION:** Nevada Seismological Laboratory

**ADDRESS:** 1664 N. Virginia Street

**CITY:** Reno **STATE:** NV **ZIP CODE:** 89557-0172

**TELEPHONE:** (775) 784-4265 **FAX:** N/A

**EMAIL:** gkent@unr.edu

<b>LOCAL HAZARD MITIGATION PLAN INFORMATION</b>
---

**8. PLAN TYPE:**

**A. ACTIVITY TYPE:**

Planning activity types are classified as one of the choices listed below. Pick **one** of the following choices that best describes the type of plan this subapplication will deliver:

1. <input type="checkbox"/> <b>New Single Jurisdiction Local Hazard Mitigation Plan</b> Select for single jurisdictions that have no existing hazard mitigation plan.
--

2. <input type="checkbox"/> <b>Update to Single Jurisdiction Local Hazard Mitigation Plan</b> Select for single jurisdiction that have a FEMA approved plan in place.	<b>FEMA APPROVAL DATE</b>
--	---------------------------

3. <b>New Multi-Jurisdictional Local Hazard Mitigation Plan</b> Select if there is no existing plan, and multiple jurisdictions will be included.
--

4. <input type="checkbox"/> <b>Update to Multi-Jurisdictional Local Hazard Mitigation Plan</b> Select for multi-jurisdictions that have a FEMA approved plan in place.	<b>FEMA APPROVAL DATE</b>
---	---------------------------

5. <input type="checkbox"/> <b>New Tribal Mitigation Plan</b> (in accordance with 44 CFR Section 201.7) Select for tribal federally recognized tribes that have no existing hazard mitigation plan.
--

6. <input type="checkbox"/> <b>Update to Tribal Mitigation Plan</b> (in accordance with 44 CFR Section 201.7) Select for federally recognized tribes that have a FEMA approved plan in place.	<b>FEMA APPROVAL DATE</b>
--	---------------------------

7. <input checked="" type="checkbox"/> <b>Other Planning-Related Activities</b> Describe planning activities: <div style="border: 1px solid black; padding: 10px; margin: 10px 0;">                     The central project goal is to perform the requisite scientific research to develop a detailed Earthquake Early Warning Hazard implementation plan for Nevada that could be incorporated into future Statewide Hazard Mitigation planning efforts. This will involve targeted research to understand current monitoring equipment and its limitation, earthquake rupture scenario compilation and analysis, and the development of a planning document that reflect key scientific findings.                 </div> <div style="margin-top: 10px;">  The following activities cannot be funded as mitigation planning related activities: Hazard identification or mapping and related equipment for the implementation of mitigation activities, Geographic Information System (GIS) software, hardware, and data acquisition whose primary aim is mitigation activity, public awareness or education campaigns about mitigation, project scoping or development (such as BCA, engineering feasibility studies, application development, construction design, or EHP data collection), or activities not resulting in a clearly defined product or products.                 </div>
--

**COMPLETE SECTION E IF YOU SELECTED 8.A.3. OR 8.A.4. ABOVE:**

**E. MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN INFORMATION:**

If your plan type is multi-jurisdictional, a Letter of Commitment (LOC) from each participating jurisdiction is required. Use the template [here](#). A separate LOC must be executed by each participating jurisdiction and

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submitted to the lead agency and NV DEM jointly. The subapplication must include an LOC for each identified jurisdiction clearly stating commitment to participate in the development of the plan. Being recognized as a member of an approved multi-jurisdictional plan verifies a local agency's eligibility for hazard mitigation grant funds as long as they meet the participation criteria set forth in the letter.

- Enter the names of all the jurisdictions that will be included in your plan.
- Enter the County name included in the plan.
- Enter all the congressional district(s) within plan jurisdictions from <https://www.census.gov/mycd/>.
- Enter the exact title of the Letter of Commitment (LOC) electronic file that will be included on the required CD-RW Discs and place hard copies of each LOC in the LOC tabbed section of the binder.
- Identify the population of the jurisdiction applying for the planning grant using current census data.

N/A per discussion with program officer



### **COMPLETE SECTION F IF YOU SELECTED 8.A.2. OR 8.A.4. OR 8.A.6. ABOVE:**

#### **F. PLAN UPDATES:**

Describe why the update to your plan is needed and describe how the update will build on your existing approved mitigation plan.

N/A, not a plan update

## **PLANNING INFORMATION**

### **9. PLANNING INFORMATION:**

#### **A. PLAN TITLE:**

**Advancing Hazard Mitigation in Nevada through Earthquake Early Warning  
Research and Planning**

Use the same plan title used in your approved planning NOI.

#### **B. PLANNING LOCATION:**

Provide a detailed location in the box below. Describe the planning area, including any non-contiguous land holdings or assets, and demographics.

The hazard mitigation plan encompasses the state of Nevada, but this plan will focus in particular on western Nevada (including Reno/Carson and Las Vegas) where earthquake hazards are most pronounced.

#### **C. EXISTING PLANS:**

Identify existing plans, studies, reports, involvement for current mitigation activities (e.g., General Plan, Capital Improvement Plan, Fire Plan, etc.):

National Seismic Hazard Maps exist for the State of Nevada, but no earthquake early warning plan has been put in place. ShakeAlert, the early warning system for California, Oregon, and Washington, is already operational.

#### **D. OTHER PLANNING ACTIVITIES/INITIATIVES:**

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Identify involvement with other mitigation activities (i.e., Flood Plan, Debris Plan, Local Recovery Plan, adoption and enforcement of codes/ordinances that promote mitigation, Climate Change reduction efforts, protection of environment, address sustainability, etc.).

This would be the first EEW plan for Nevada. It could be incorporated into future Statewide Hazard Mitigation Plans.

**E. CONSULTANT:**

Will a consultant be hired to assist with the planning development process? NO

If yes, include the following information in the box below or attach copies if known:

- Request for proposals (RFP's)
- Bid process
- Description of responsibilities
- Clarify at what point the consultant's responsibilities will be fulfilled (i.e., duties will be fulfilled when FEMA notifies jurisdiction of plan approval)

N/A, no consultant necessary



**RECOMMENDATION: CONSULTANT'S DELIVERABLE RESULTS IN A FEMA APPROVED AND LOCALLY ADOPTED PLAN.**

**10. SCOPE OF WORK (SOW):**

**STATE EXACT SOW DOCUMENT TITLE:**

**Advancing Hazard Mitigation in Nevada through Earthquake Early Warning Research and Planning**

- Describe the entire SOW of planning in clear, ample detail.
- Must provide a thorough description of **all activities** to be undertaken.
- Must be written in sequential order from start to finish of the plan.
- Describe method and schedule of monitoring, evaluating, and updating the plan within the 5-year cycle.



**INSERT THIS DOCUMENT IN THE SOW SECTION OF THE BINDER.**

**WORK SCHEDULE INFORMATION**

**11. PLANNING WORK SCHEDULE:**

The intent of the work schedule is to provide a realistic appraisal of the time and components required to complete the plan.

- Describe the major milestones and the duration of time to complete each one.
- Show activity duration in months.
- The work schedule must include six months for State and FEMA review/revisions/approval, appropriate time for local adoption and 90 days for grant close-out.

WORK SCHEDULE EXAMPLE		
#	DESCRIPTION	TIMEFRAME
1.	Procure a consultant	3 months
2.	Develop planning team	2 months
3.	Community and stakeholder outreach	3 months
4.	Planning process for hazard identification	3 months
5.	Planning process for risk assessment	3 months
6.	Mitigation strategy	2 months
7.	Maintenance plan development	1 month
8.	Plan draft (with community/stakeholder input)	3 months
9.	NV DEM/FEMA Review/Revisions	6 months
10.	Local Plan Adoption	2 months
11.	Grant Close-out	3 months
<b>TOTAL MONTHS:</b>		<b>31 months</b>



**TOTAL PLANNING DURATION (INCLUDING CLOSE-OUT) CANNOT EXCEED A 36 MONTH PERIOD OF PERFORMANCE (POP).**

#	DESCRIPTION	TIMEFRAME
1.	Inventory / assessment of NSL operated stations	3 months
2.	Station latency calculations	3 months
3.	Determination of earthquake rupture scenarios	3 months
4.	Scenario alert time calculations	2 months
5.	Scenario ground motion calculations	2 months
6.	Ground motion model residual analysis	2 months
7.	Network and rupture scenario synthesis	3 months
8.	Implementation plan development	4 months
9.	Implementation plan compilation and dissemination	3 months
10.	<b>STANDARD VALUE (DO NOT CHANGE)</b> NV DEM/FEMA Review/Revisions	6 months
11.	Local Plan Adoption	2 months
12.	<b>STANDARD VALUE (DO NOT CHANGE)</b> Grant Close-out	3 months
<b>TOTAL MONTHS:</b>		<b>36 months</b>

If more lines are needed than provided, indicate the title of document in box 1 and attach a separate work schedule in the schedule section of binder.

**HAZARD INFORMATION**

**12. HAZARD & RISK ANALYSIS:**

**A. HAZARD ANALYSIS TYPE:**

Select the hazard(s) below that this plan will address. Select as many as needed.

- |  |  |   |   |
|--|--|---|---|
| <input type="checkbox"/> BIOLOGICAL      | <input checked="" type="checkbox"/> EARTHQUAKE | <input type="checkbox"/> LAND SUBSISTENCE | <input type="checkbox"/> TERRORIST                                      |
| <input type="checkbox"/> CHEMICAL        | <input type="checkbox"/> FIRE                  | <input type="checkbox"/> MUD/LANDSLIDE    | <input type="checkbox"/> TORNADO  |
| <input type="checkbox"/> CIVIL UNREST    | <input type="checkbox"/> FISHING LOSSES        | <input type="checkbox"/> NUCLEAR          | <input type="checkbox"/> TOXIC SUBSTANCES                               |
| <input type="checkbox"/> COASTAL STORM   | <input type="checkbox"/> FLOOD                 | <input type="checkbox"/> SEVERE ICE STORM | <input type="checkbox"/> TSUNAMI  |
| <input type="checkbox"/> CROP LOSSES     | <input type="checkbox"/> FREEZING              | <input type="checkbox"/> SEVERE STORM(S)  | <input type="checkbox"/> WINDSTORM                                      |
| <input type="checkbox"/> DAM/LEEVE BREAK | <input type="checkbox"/> HUMAN CAUSE           | <input type="checkbox"/> SNOW             | <input type="checkbox"/> OTHER (describe below):                        |
| <input type="checkbox"/> DROUGHT         | <input type="checkbox"/> HURRICANE             | <input type="checkbox"/> SPECIAL EVENTS   | <div style="border: 1px solid black; height: 15px; width: 100%;"></div> |

**B. DESCRIBE PAST AND FUTURE PROBLEMS/HAZARDS/RISKS:**

- Describe the problem(s) this plan is attempting to solve and the expected outcome. Describe in detail how the plan will reduce the effects of hazards and how the plan will eliminate or reduce risks.

The overall objective of this project is to perform the scientific research necessary to craft a detailed Earthquake Early Warning Implementation Plan for the State of Nevada. This lays the groundwork for the expansion of Early Warning to Nevada, which would provide seconds-to-minutes alerts to the population and critical infrastructure in the event of a large earthquake.

- History: Describe the past hazards, risk to life and risk to safety in the community. Describe the type, location and extent of hazards. Include previous occurrences (repetitive losses) and the probability of future events.

The State of Nevada is one of the most seismically active in United States, with major population centers in the western portion of the state that are exposed to significant earthquake hazards. Paleoseismic and historical records, combined with observations of contemporary geodetic deformation and earthquake occurrence patterns, suggest that damaging earthquakes with magnitude M6 and larger will likely impact these regions in the near future. Indeed, several large earthquakes have occurred over the past five years throughout the Walker Lane, a zone of active deformation spanning the California-Nevada border including the 2019 Ridgecrest 2020 Monte Cristo and 2021 Antelope Valley events. Over a longer time horizon, the occurrence of large earthquakes was frequent throughout the 1900s, with 1954 being the standout year with 5 different mid M6 – M7 events in a single calendar year. Earthquake occurrence is likely to be regular feature of life in Nevada in the coming years.

- Describe the vulnerability to identified hazards. Includes an overall summary of each hazard and its effect on the community, including a general description of types of structures affected by each hazard.

Earthquake hazards can cause a wide range of impacts to the community. Strong ground motion can damage buildings and injure people inside them or nearby.

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Shaking can also start fires and trigger power or water outages that cause significant damage. Earthquake induced landslides, liquefaction, and ground deformation can wreck road and infrastructure networks.

4. List improvements to the community that eliminated or reduced hazards/risks for at least the last 25 years.

This document lays the groundwork for an earthquake early warning system, which would be unprecedented in the State of Nevada but has the potential for significant hazard and risk mitigation. Over the past 25 years, the Nevada Seismology Laboratory has helped build out the seismic network and telemetry into a robust monitoring system capable of enacting such a new system. The advent of cellular alert networks, when combined with hi-speed network communication system and points of presence hosted by the NSL, make this advancement feasible.

5. Describe types and numbers of existing and future structures and facilities that have the potential to occur damages and an estimate of potential dollar losses.

Nevada annual earthquake loss is about \$345.9 million based on the Hazus<sup>®</sup> Estimated Annualized Earthquake Losses for the United States report. Earthquake losses do not play out on an annual basis, however, and are often concentrated within certain years. It is clear from historical observations that large earthquakes will occur in the future in Nevada. The aim of this proposal is to have an Earthquake Early Warning system in place then to help prevent losses we have full capability to mitigate. Without such a system, the next large earthquake in Western Nevada is likely to be recorded by NSL seismometers that help alert communities in eastern California through ShakeAlert without doing the same for communities on the Nevada side of the border.

6. Description of mitigation goals and objectives to reduce or avoid long-term vulnerabilities to the identified hazards.

With an effective Earthquake Early Warning System in place, users will be provided timely alerts of impending strong shaking so that they can prepare as best as possible. Large user groups like hospitals, utility providers, and infrastructure or transportation networks can automate immediate mitigatory procedures, while individual users can take themselves out of harm's way through drop, cover and hold on tactics. ShakeAlert is operational in California, Oregon, and Washington while these mitigation objectives in mind, but no such system exists yet for the state of Nevada. It is the purpose of this project to work towards this form of hazard mitigation goal.



**COST ESTIMATE INFORMATION**

**13. HMGP COST ESTIMATE SPREADSHEET:**

**A. COST ESTIMATE INSTRUCTIONS:**

Using the [HMGP Cost Estimate Spreadsheet](#), provide a detailed cost estimate breakdown.

- Cost estimate describes the anticipated costs associated with the SOW for the proposed mitigation plan.
- Cost estimates must include detailed estimates of cost item categories.
- Only include costs that are directly related to performing the mitigation activity.
- Documentation that supports the cost estimate must be added to the budget section of the binder.
- Eligible costs must be included in both the cost estimate spreadsheet and the scope of work to be reimbursed.

COST ESTIMATE SPREADSHEET EXAMPLE				
ITEM NAME	UNIT QTY	UNIT	UNIT COST	COST EST TOTAL
PLAN INITIATION	80	HR	\$120	\$9,600
PUBLIC ENGAGEMENT	40	HR	\$60	\$2,400
REVIEW OF PLANS	140	HR	\$80	\$11,200
HAZARD/RISK ASSESSMENT	100	HR	\$150	\$15,000
LOCAL PLAN UPDATES	200	HR	\$67	\$13,400
COMPILE DRAFT	120	HR	\$120	\$14,400
REVIEW OF DRAFT	67	HR	\$120	\$8,040
APPROVAL/ADOPTION	50	HR	\$150	\$7,500
PLANNING CLOSE-OUT	80	HR	\$150	\$12,000
<b>TOTAL COST ESTIMATE:</b>				<b>\$93,540</b>

 **DO NOT COPY EXAMPLE TO SUBAPPLICATION**

**B. INELIGIBLE COSTS:**

The following are ineligible line items:

- Lump Sums
- “Other” Costs
- Cents (must use whole dollar amounts, round unit prices up to whole dollars)
- Contingency Costs
- Indirect Charges
- Miscellaneous Costs
- Overhead Costs

**C. PRE-AWARD COSTS:**

Eligible pre-award costs are costs incurred after the disaster date of declaration, but prior to grant award. Pre-award costs directly related to developing the application may be funded.

- Submission of subapplication
- Workshops or meetings related to development

 **SUBAPPLICANTS WHO ARE NOT AWARDED FUNDS WILL NOT RECEIVE REIMBURSEMENT FOR PRE-AWARD COSTS.**

**D. COST ESTIMATE NARRATIVE:**

FEMA requires a cost estimate narrative that explains all projected expenditures in detail. The cost estimate narrative must mirror the cost estimate spreadsheet and should include a full detailed narrative explaining and supporting the costs listed in the Cost Estimate Spreadsheet. If your cost estimate includes City, County, or State employees’ time, include personnel titles and salary/hourly wages plus benefits for a total hourly cost. Detailed, functional timesheets must be retained.

Title the document “Cost Estimate Narrative” and include in the budget section of binder.

**14. FEDERAL/NON-FEDERAL SHARE INFORMATION:**

**A. FUNDING RESTRICTIONS:**



HMGP funding is restricted to a maximum of \$150,000 for each single jurisdictional planning subapplication and up to \$250,000 if multi-jurisdictional. FEMA will contribute up to 90% of the total planning cost. A minimum of 10% of the total eligible costs must be provided from a non-federal source. State does not contribute to local cost share.



A jurisdiction may contribute an amount greater than the 10% non-federal share.

**B. TOTAL PLANNING COST ESTIMATE:**

\$98,697
----------

Enter total cost formulated on [HMGP Cost Estimate Spreadsheet](#)

ENTER \$ IN BOX ABOVE



**VERIFY ALL AMOUNTS ENTERED ARE ACCURATE.**

**INCORRECT AMOUNTS WILL DELAY PROCESSING OF YOUR SUBAPPLICATION.**

	<b>FEDERAL SHARE (90% MAXIMUM)</b>	REQUESTED AMOUNT:	\$88,827
			ENTER \$ IN BOX ABOVE
		PERCENTAGE AMOUNT:	90%
			ENTER % IN BOX ABOVE
	<b>NON-FEDERAL SHARE (10% MINIMUM)</b>	REQUESTED AMOUNT:	\$9,870
			ENTER \$ IN BOX ABOVE
		PERCENTAGE AMOUNT:	10%
			ENTER % IN BOX ABOVE

**C. NON-FEDERAL MATCH SOURCE - MATCH COMMITMENT LETTER:**

X Use the [Local Match Commitment Letter Template](#) to complete this section and add completed letter to the match section of the binder.

- A signed Match Commitment Letter must be provided on agency letterhead.
- The non-federal source of matching funds must be identified by name and type.
- If "other" is selected for funding type, provide a description.
- Provide the date of availability for all matching funds.
- Provide the date of the Funding Match Commitment Letter.
- Funds must be available at the time of submission unless NV DEM prior approval has been received.
- If there is more than one non-federal funding source, provide the same information for each source on an attached document.
- Match funds must be in support of cost items listed in the cost estimate spreadsheet.
- Requirements for donated contributions can be found in 2 CFR 200.306.

**PRINT THIS PAGE – ORIGINAL SIGNATURE IS REQUIRED**

**AUTHORIZATION**


The undersigned does hereby submit this subapplication for financial assistance in accordance with the Federal Emergency Management Agency’s (FEMA) Hazard Mitigation Grant Program (HMGP) and the State Hazard Mitigation Administrative Plan and certifies that the subapplicant (e.g., organization, city, or county) will fulfill all requirements of the program as contained in the program guidelines and that all information contained herein is true and correct to the best of our knowledge.

Subapplicant Authorized Agent

**NAME:** Tiffany Roller

**TITLE:** Senior Research Administrator, Pre-Award

**ORGANIZATION:** BOR, NSHE, obo University of Nevada, Reno

**SIGNATURE:** 

**DATE:** September 12, 2022

## **COST ESTIMATE NARRATIVE**

University of Nevada, Reno

*The University of Nevada, Reno, observes an 8-month academic and 4-month overload calendar schedule.*

### **A. SENIOR PERSONNEL**

PI and Co-PI's: Support for the PI, Dr. Trugman, is requested at 0.33 summer months (7 days) per year over the course of the project. Salary estimates are based on a daily rate of \$613.10, which is calculated from the current UNR base salary. The PI will manage the project and lead the team on the three major science tasks: station and network analysis, source and rupture analysis, and synthesis of an Earthquake Early Warning implementation plan. The PI will also be the primary adviser to the GRA listed below.

Support for Co-PI's Kent and Morton are requested at 6 days and 0.23 months per year, respectively. Kent's daily rate is \$1,011.67 and Morton's monthly rate is \$7,679.09, as calculated from current UNR base salary. As Network Director and Seismologist, Kent and Morton will provide insight into current NSL station management resources and help craft the overall implementation plan to ensure its feasibility.

Budget planning parameters include an annual inflation/cost-of-living factor of 2% for salaries.

### **B. OTHER PERSONNEL**

Graduate Research Assistants: Support for one graduate research assistant is requested for 4 months each year (just shy of one semester). The student will earn a stipend amount of \$2,400 per month. The GRA will work with PI Trugman to analyze the network and rupture scenarios necessary to inform the implementation plan.

### **C. FRINGE BENEFITS**

Fringe rates for the University of Nevada, Reno, are approved by the Department of Health and Human Services. The rate for faculty academic and summer salary (with retirement) and postdocs is 32.3% of salary. The rate for graduate assistantships is 16.7% of salary.

### **D. EQUIPMENT**

None.

### **E. TRAVEL**

We have for two trips in year one to visit Caltech and UC Berkeley, our California ShakeAlert partners, to better inform us of operational and logistical hurdles as we craft an implementation plan. All four project participants (PI, two Co-PIs, and GRA) will take part in these site visits.

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Lodging and per diem will be based on approved GSA rates at time of travel:

<https://www.gsa.gov/travel/plan-book/per-diem-rates>

Purpose of Travel	Location	Item	Rate	Cost
Caltech Site Visit	Pasadena, CA	Airfare	\$300/flight x 4 persons	\$1200
		Hotel (Los Angeles rates)	\$182/night x 4 persons x 3 nights	\$2184
		Rental Car	\$70/day x 3 days	\$210
		Per Diem	\$74/day x 4 persons x 3 days	\$888
			<b>TOTAL</b>	<b>\$4482</b>

Purpose of Travel	Location	Item	Rate	Cost
UC Berkeley Site Visit	Berkeley, CA	Airfare	\$300/flight x 4 persons	\$1200
		Hotel (Oakland rates)	\$189/night x 4 persons x 3 nights	\$2268
		Rental Car	\$70/day x 3 days	\$210
		Per Diem	\$74/day x 4 persons x 3 days	\$888
			<b>TOTAL</b>	<b>\$4566</b>

Total travel support for both trips amounts to \$9,048 in Year 1.

**F. OTHER DIRECT COSTS**

Partial tuition remission is required on all graduate research assistantships at UNR. Tuition is based on a rate of \$222.94 per credit, and is calculated proportional to the effort from each graduate student (8 credits in this case).

**G. TOTAL DIRECT COSTS - \$80,752**

**H. INDIRECT COSTS**

Indirect costs for this project are calculated at a 10% rate applied to the Total Direct Costs (TDC), per the governor's memo.

Total calculated F&A for this project is \$8,075.

**I. TOTAL COST (TDC & Indirect) - \$88,827**

**J. COST SHARE, NON-FEDERAL SOURCES**

The Nevada Seismological Laboratory (by way of Nevada System of Higher Education, UNR) will provide cost share in the form of additional salary (academic contract time) from PIs Trugman and Kent. Each will contribute between 1.0-1.5 days per year as matching funds, along with associated fringe and F&A cost. This amounts to \$3,602 in Y1, \$2,629 in Y2, and \$2,652 in Y3, for a total of \$8,883 across the three-year period of performance.

**K. TOTAL PROJECT COST - \$97,709**

# Agenda Item #5e

## Nevada Hazard Mitigation (NDEM)

**Personnel Costs**

**Faculty**

	Monthly Rate	Months/Hrs	Year 1	Year 2	Year 3	
Graham Kent, Director *Daily Rate	\$1,011.67	6 days	\$2,023	\$2,064	\$2,105	
Daniel Trugman, Assistant Professor *Daily Rate	\$613.10	7 days	\$4,292	\$4,378	\$4,465	
Emily Morton, Network Seismologist *Monthly Rate	\$7,679.09	0.23	\$1,772	\$1,807	\$1,844	
		<b>Faculty Sub-Total</b>	<b>\$8,087</b>	<b>\$8,249</b>	<b>\$8,414</b>	<b>\$24,749</b>

**Grad Student**

Graduate Student	\$2,400	12.00	\$9,600	\$9,600	\$9,600	
		<b>Graduate Student Sub-Total</b>	<b>\$9,600</b>	<b>\$9,600</b>	<b>\$9,600</b>	<b>\$28,800</b>

**Undergraduate Students**

	\$0		\$0	\$0	\$0	
	<b>Undergrad Students Sub-Total</b>		<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

**Salaries Sub-Total** **\$17,687** **\$17,849** **\$18,014** **\$53,549**

**Fringe Benefits Costs** \*Rates are for proposal purposes and set by UNR's Office of sponsored projects.

	Rate					
Faculty	32.3%	\$2,612	\$2,664	\$2,718		
Classified (Regular and Overtime)	41.3%	\$1,603	\$1,603	\$1,603		
Grad Students	16.7%	\$4,215	\$4,268	\$4,321		
	<b>Fringe Benefits Sub-Total</b>					<b>\$12,804</b>

**Travel Costs**

Rates set by the GSA adopted by State of Nevada

	No. People	No. Days				Trips	Total
Cal Tech - Pasadena							
Airfare (estimated \$300 pp)	4		\$1,200				
Rental Car (estimated \$70 per day)		3	\$210				
PerDiem \$74 per day, Lodging \$182 per day (Los Angeles Rates)	4	3	\$3,072			1	4,482
UC Berkley							
Airfare (estimated \$300 pp)	4		\$1,200				
Rental Car (estimated \$70 per day)		3	\$210				
PerDiem \$74 per day, Lodging \$189 per day (Oakland Rates)	4	3	\$3,156			1	4,566

Per Diem and Lodging sub total by Task **\$9,048** **\$0** **\$0**

**Travel Sub-Total** **\$9,048** **\$0** **\$0** **\$9,048**

**Tuition**

	Cost	Qty	Cost	Cost	Cost	
<b>Other Direct Costs Sub-Total</b>	<b>\$ 222.94</b>	<b>8 credits</b>	<b>\$1,784</b>	<b>\$1,784</b>	<b>\$1,784</b>	<b>\$5,351</b>

**Total Direct Costs**

**Indirect Costs (10%) applied to TDC**

**Total Costs (Total Direct Costs + Indirect Costs)** **\$36,007** **\$26,290** **\$26,530** **\$88,827**

**10% Cost Share Match** **\$8,883**

**Total with Cost Share** **\$97,709**

## #5f Agenda Item

### Scope of Work State Hazard Mitigation Update

The Nevada State HM Plan is updated with support from the Hazard Mitigation Working Group. The Working Group evaluates each section for strengths, weaknesses, and utility of the information it contains. Subject matter experts will be utilized to update each hazard section. This information will be presented to the Working Group at their meetings who will reach consensus about the validity and objectives of the plan. A new contract employee will be hired to coordinate and oversee the update process and will work with current mitigation staff to complete the update. Travel funds are included in this application for any needed travel for mitigation staff during the update process. Budget also includes funding for supplies. Management costs at 5% of project are requested. Secondary contract staff time is included in the budget as well.

The list of participating agencies, stakeholders, and the public in the update of the state plan is found in attachment Document 1-1. The meeting agendas follow the Nevada Open Meeting Law indicating the posting, publication, and openness of the meeting to the public for comments and participation. Nevada Division of Emergency Management (NV DEM) posts the agendas on its website. NV DEM also posts the agendas and meeting minutes on the state website as well as other public locations. NV DEM distributes the agenda to all local emergency and tribal entities receiving funds from NV DEM. In addition, NV DEM announces the meetings in its daily Situation Report provided to local first responding entities, health districts, public works, and the mitigation distribution list, etc., including both at the state and local level. The activities are part of the hazard identification and risk/vulnerability assessment and plan maintenance processes; these in turn will result in mitigation activities to be included in the updated strategy and adoption of a revised plan. The NV DEM's Hazard Mitigation program will complete the proposed planning activities resulting in new data about loss estimation through HAZUS earthquake runs with incorporation of both flood and earthquake data in the plan. The drought update from the amendment will be included in the plan update including the full update of the drought section to our mitigation actions section. This new data will be integrated into the updated Enhanced Hazard Mitigation Plan (ESHMP) for the state with the assistance to the Hazard Mitigation Officer from contract staff.

The proposed activities are listed below.

1. Development of a more comprehensive risk/vulnerability assessment all hazards with expansion of the mitigation strategies and mitigation actions section.
2. Coordination and support for the Hazard Mitigation Working Group meetings and assisting the State Hazard Mitigation Officer (SHMO), and the Nevada Hazard Mitigation Working Group (HMWG) to review and revise the ESHMP. Specifically contract staff will work closely as a member of the Planning Team to help with organization of resources, coordination among agencies and local jurisdictions; profiling of all hazards; risk assessment; development and continuing the planning process of the HMP; integration of local plans into the State plan;



addressing FEMA-suggested revisions to the ESHMP; implementation of Subject Matter Expert-generated changes and additions to the Plan. The state planning process is ongoing in Nevada and maintenance takes place during the entire process with review and evaluation of current data and language for the entire plan. The HMWG meets quarterly to review and evaluate sections, identify and rank hazards, revise the vulnerability and risk assessment in accordance with new ranking results, and analyze, modify, and rank the mitigation activities. These meetings will likely be increased in the upcoming months. The current mitigation strategy will be evaluated. The results of the tasks above will be integrated into the 2023 draft ESHMP.

3. The primary sources of information for each proposed activity in this subapplication are detailed below:
  - a. Updated earthquake and flood data will be input into HAZUS database for the state of Nevada and use HAZUS to calculate the reduction in risk that may be achievable for Nevada (reduction in economic loss and reduction in fatalities and injuries)
  - b. Additional GIS layers will help our contractor develop a new earthquake epicenter map of Nevada and a new geodetic strain map that will use high precision global positioning system measurements to characterize earthquake hazards in the state. The Planning Team comprised of NV DEM and contract staff meets twice a month to analyze and prepare data for incorporation into the plan based on the direction from the HMWG.
  - c. The NV DEM will compile information from the projects 1-3 above as well as the Subject Matter Experts and the ESHMP State partners including NV Division of Water Resources and NV Division of Forestry and incorporate into the draft NSHMP.
4. The Division of Emergency Management (NV DEM) has an extensive record of effectively administering grant funds, including Homeland Security, U.S. Department of Energy, and FEMA. NV DEM has fiscal and program staff, along with the Nevada Hazard Mitigation Working Group's direction in support of the implementation of the four proposed activities. Please see Document 1-2 Nevada Hazard Mitigation Working Group for a list of members. NV DEM will rely on Subject Matter Experts from numerous state agencies and other resources for technical expertise, equipment and software needed to accomplish these tasks. Contract staff has technical expertise in GIS, database management and web development tasked with implementing the GIS-based activities using currently available servers, computers, databases, and software. As the fourth activity, NV DEM staff and contract staff will work as part of the Working Group to implement changes and additions to the Plan generated by members of the Subject Matter Experts to review and revise sections of the State Hazard Mitigation Plan. They will also help organize resources, coordination among agencies and local jurisdictions; profiling of natural hazard; risk assessment; development and updating of the hazard mitigation plan; integration of local plans into the State plan; addressing FEMA-suggested revisions to the state hazard mitigation plan. This activity is implemented at the NV DEM offices with available computers and software. Resulting data will be posted on the Nevada Division of Emergency

Management website for immediate access by local communities. NV DEM will notify the affected communities of the availability of the data for purposes of integration into their local plans. The new data will be presented to the HMWG for integration into the updated State Enhanced Hazard Mitigation Plan. Please see the attached file called Document 1-3 Plan Update Schedule for detailed descriptions of the proposed activities and their implementation.

5. During the past 12 years, the Nevada Division of Emergency Management's Hazard Mitigation Program and the Bureau of Mines and Geology (NBMG) as part of the Nevada System of Higher Education, University of Nevada, Reno, have partnered in developing hazard mitigation planning tools for statewide use. This planning activity became unable to be continued by the NBMG staff secondary to staffing shortages and thus it was necessary to hire a contractor to lead the update of the State plan.

# HAZARD MITIGATION GRANT PROGRAM PLANNING SUBAPPLICATION

**DISASTER NUMBER:**

DR-4523

**JURISDICTION NAME:**

NV DEM

**PLAN TITLE:**

DEM State HMP Update

**CONTROL NUMBER:**

THE CONTROL NUMBER IS RECEIVED AT TIME OF SUCCESSFUL NOI SUBMITTAL



# HAZARD MITIGATION GRANT PROGRAM (HMGP)

## INTRODUCTION

### INTRODUCTION

As a result of the declaration of a major federal disaster, the State of Nevada is eligible for HMGP funding. The State has established priorities to accept subapplications from subapplicants state-wide, state agencies, tribal governments, local governments, and Private Non-Profits.

Hazard mitigation activities are aimed at reducing or eliminating future damages. Activities include hazard mitigation plans approvable by the Federal Emergency Management Agency (FEMA).

HMGP is successful in meeting the FEMA requirements to qualify as an Enhanced State Hazard Mitigation Plan (ESHMP) state. ESHMP accreditation has resulted in additional millions of dollars available for local agencies' hazard mitigation plan and project funding. In order to maintain ESHMP status, further information is requested by FEMA. This information is requested as a means of assessing the pro-activity of your community or agency.

### REGULATIONS

Federal funding is provided under the authority of the [Robert T. Stafford Emergency Assistance and Disaster Relief Act \(Stafford Act\)](#) through FEMA and the Nevada Division of Emergency Management (NV DEM). NV DEM is responsible for identifying program priorities, reviewing subapplications and forwarding recommendations for funding to FEMA. FEMA has final approval for activity eligibility and funding.

The federal regulations governing HMGP are found in Title 44 of the Code of Federal Regulations (44CFR), Part 201 (Planning) and Part 206 (Projects) and in Title 2 of the Code of Federal Regulations (2CFR), Part 200 (Uniform Administrative Requirements).

### FEMA GUIDANCE

FEMA requires that all plans adhere to the [Local Mitigation Planning Handbook 2013](#) and [Hazard Mitigation Assistance Unified Guidance 2015](#).

### TIME EXTENSIONS

Time extensions may be requested and will be approved or denied on a case-by-case basis. To request additional time to submit a subapplication, send an email to [mitigation@dem.nv.gov](mailto:mitigation@dem.nv.gov). The subject line must include: "Subapplication Time Extension Request (include Disaster Number and Control Number)". The body of the message must include justification and specific details supporting why more time is needed and how much additional time is requested.

### QUESTIONS

Submit all HMGP subapplication questions to the following mailbox: [mitigation@dem.nv.gov](mailto:mitigation@dem.nv.gov).

## HAZARD MITIGATION GRANT PROGRAM ELIGIBILITY CHECKLIST

Before completing the subapplication, review the following HMGP eligibility checklist to ensure planning meets the requirements for HMGP funding.

- Cost Share:** NV DEM will not accept subapplications with a requested federal share that exceeds \$150,000 for a single jurisdiction mitigation plan or \$250,000 for a multi-jurisdictional mitigation plan. Other approved planning-related activities are approved on a case-by-case basis for up to \$150,000. Funds are provided on a 75/25 cost share basis: 75% federal and 25% non-federal cost share. Local funding match of 25% of the total planning cost is required by the subapplicant. HMGP matching funds must be from a non-federal source. State does not contribute to local funding match.
- Period of Performance (POP):** NV DEM will not accept subapplications with performance periods exceeding 36 months.
- Approved Notice of Interest:** Subapplicant must have an approved Notice of Interest (NOI) to submit a subapplication for HMGP funding. Only activities approved through the NOI process can be submitted for HMGP funding consideration.
- Scope of Work:** The planning scope of work (SOW) must be consistent with the SOW provided in the approved Notice of Interest (NOI).
- Time Extensions:** Unless a time extension has been approved before the deadline, subapplications must be postmarked by the applicable deadline to be considered for funding.
- Hazard Mitigation Planning Laws, Regulations and Policies Guidance:** Subapplicants must use applicable State, tribal, or local mitigation planning guidance to determine the specific requirements for new plans and plan updates regarding the planning process; hazard identification and risk assessment; mitigation strategy; plan review, evaluation, and implementation; and plan adoption. For State, tribal, or local mitigation planning guidance, read the FEMA Mitigation Planning [webpage](#).
- Subapplicant Eligibility:** Subapplicant must be an eligible State Agency, Local Government (City, County, Special Districts) or Federally Recognized Tribe.
- Duplication of Programs:** HMGP funding cannot be used as a substitute or replacement to fund activities or programs that are available under other federal authorities, known as Duplication of Programs (DOP).
- FOR MULTI-JURISDICTIONAL PLANS ONLY - Letters of Commitment (LOC):** A Letter of Commitment must be included for each participating jurisdiction.



**SUBAPPLICANT MUST BE ABLE TO CHECK EVERY BOX TO QUALIFY FOR HMGP FUNDING.**

## **SUBAPPLICATION FORMAT INSTRUCTIONS**

NV DEM requires the following format to be used for all HMGP subapplications. Two complete subapplications must be submitted to NV DEM. Each subapplication must be in separate binders. The first copy is logged and retained for NV DEM records. The second copy will be forwarded to FEMA for review and final determination.

### **COMPLETE SUBAPPLICATION PACKAGE CONSISTS OF THE FOLLOWING:**

**Submit your application electronically by email or another format such as Dropbox or other method of sending a large files. Ensure all needed items are included in your submission.**

### **ORGANIZATION OF THE SECTIONS MUST BE TABBED IN THE FOLLOWING FORMAT:**

0. Table of Contents
1. Subapplication
2. Scope of Work
3. Schedule (Additional documentation work schedule components, Gantt chart, etc.)
4. Budget ([HMGP Cost Estimate Spreadsheet](#) and cost estimate narrative)
5. Match ([Local Match Commitment Letter Template](#))
6. Maintenance ([Planning Maintenance Letter Template](#))
7. Letters of Commitment **for Multi-Jurisdictional Local Hazard Mitigation Plans only** ([Letter of Commitment Template](#))
8. Supporting Docs (Any extra supporting documentation)

### **EMAIL COMPLETED SUBAPPLICATIONS TO (OR EMAIL PREFERRABLY):**

[Mitigation@dem.nv.gov](mailto:Mitigation@dem.nv.gov)

# PLANNING SUBAPPLICATION FORM

## SUBAPPLICANT INFORMATION


<b>1. SUBAPPLICANT:</b>	NV Division of Emergency Management		
	<small>NAME OF STATE AGENCY, TRIBAL GOVERNMENT, LOCAL GOVERNMENT, OR SPECIAL DISTRICT APPLYING FOR FUNDING</small>		
<b>2. TYPE:</b>	<b>STATE/LOCAL GOVERNMENT</b> <input checked="checked" type="checkbox"/>	<b>TRIBAL GOVERNMENT</b> <input type="checkbox"/>	<b>SPECIAL DISTRICT</b> <input type="checkbox"/>
<b>3. FIPS #:</b>	32	IF YOU DO NOT KNOW YOUR FEDERAL IDENTIFICATION PROCESSING SYSTEM NUMBER (FIPS #), REQUEST BY EMAILING <a href="mailto:mitigation@dem.nv.gov">mitigation@dem.nv.gov</a>	
<b>4. DUNS #:</b>	607025848	IF YOU DO NOT KNOW YOUR DATA UNIVERSAL NUMBERING SYSTEM (DUNS) #, CALL DUN & BRADSTREET (D&B) @ 1-866-705-5711 OR VISIT WWW.SAM.GOV	
<b>5. POLITICAL DISTRICT NUMBERS:</b>	CONGRESSIONAL:          STATE ASSEMBLY:   STATE LEGISLATIVE:	1, 2, 3, 4 19, 23, 24, 25, 26, 27, 30, 31, 32, 33, 36, 38. 39, 40 1, 2, 3, 4	PROVIDE ONLY THE NUMBERS OF THE POLITICAL DISTRICTS FOR THE SUBAPPLICANT
<b>6. PRIMARY CONTACT:</b>	<small>POINT OF CONTACT FOR YOUR PLAN. NV DEM WILL CONTACT THIS PERSON FOR QUESTIONS AND/OR REQUESTS FOR INFORMATION</small>		
<b>NAME:</b>	<input type="checkbox"/> Mr. <input checked="checked" type="checkbox"/> Ms. <b>FIRST:</b> Janell <b>LAST:</b> Woodward		
<b>TITLE:</b>	State Hazard Mitigation Officer		
<b>ORGANIZATION:</b>	NV Division of Emergency Management		
<b>ADDRESS:</b>	2478 Fairview Dr.		
<b>CITY:</b>	Carson City	<b>STATE:</b> NV	<b>ZIP CODE:</b> 89701
<b>TELEPHONE:</b>	775-687-0467	<b>FAX:</b>	775-687-0322
<b>EMAIL:</b>	janell.woodward@dem.nv.gov		
<b>7. ALTERNATIVE CONTACT:</b>	<small>BACK-UP POINT OF CONTACT FOR YOUR PLAN. NV DEM WILL CONTACT THIS PERSON IF PRIMARY CONTACT IS UNAVAILABLE</small>		
<b>NAME:</b>	<input type="checkbox"/> Mr. <input checked="checked" type="checkbox"/> Ms. <b>FIRST:</b> Heather <b>LAST:</b> Cinani		
<b>TITLE:</b>	Mitigation Management Analyst		
<b>ORGANIZATION:</b>	NV Division of Emergency Management		
<b>ADDRESS:</b>	2478 Fairview Dr.		
<b>CITY:</b>	Carson City	<b>STATE:</b> NV	<b>ZIP CODE:</b> 89701
<b>TELEPHONE:</b>	775-687-0468	<b>FAX:</b>	775-687-0322
<b>EMAIL:</b>	hcinani@dem.nv.gov		

## LOCAL HAZARD MITIGATION PLAN INFORMATION

### 8. PLAN TYPE:

#### A. ACTIVITY TYPE:

Planning activity types are classified as one of the choices listed below. Pick **one** of the following choices that best describes the type of plan this subapplication will deliver:

1.	<input type="checkbox"/>	<b>New Single Jurisdiction Local Hazard Mitigation Plan</b> Select for single jurisdictions that have no existing hazard mitigation plan.	
2.	<input type="checkbox"/>	<b>Update to Single Jurisdiction Local Hazard Mitigation Plan</b> Select for single jurisdiction that have a FEMA approved plan in place.	<b>FEMA APPROVAL DATE</b>  
3.	<input type="checkbox"/>	<b>New Multi-Jurisdictional Local Hazard Mitigation Plan</b> Select if there is no existing plan, and multiple jurisdictions will be included.	
4.	<input type="checkbox"/>	<b>Update to Multi-Jurisdictional Local Hazard Mitigation Plan</b> Select for multi-jurisdictions that have a FEMA approved plan in place.	<b>FEMA APPROVAL DATE</b>  
5.	<input type="checkbox"/>	<b>New Tribal Mitigation Plan</b> (in accordance with 44 CFR Section 201.7) Select for tribal federally recognized tribes that have no existing hazard mitigation plan.	
6.	<input checked="" type="checkbox"/>	<b>Update to State Enhanced Mitigation Plan</b> (in accordance with 44 CFR Section 201.7)	<b>FEMA APPROVAL DATE</b> 10/18/2018
7.	<input type="checkbox"/>	<b>Other Planning-Related Activities</b> Describe planning activities: <div style="border: 1px solid black; height: 20px; margin-top: 5px;"></div>	
		The following activities cannot be funded as mitigation planning related activities: Hazard identification or mapping and related equipment for the implementation of mitigation activities, Geographic Information System (GIS) software, hardware, and data acquisition whose primary aim is mitigation activity, public awareness or education campaigns about mitigation, project scoping or development (such as BCA, engineering feasibility studies, application development, construction design, or EHP data collection), or activities not resulting in a clearly defined product or products.	



**COMPLETE SECTION E IF YOU SELECTED 8.A.3. OR 8.A.4. ABOVE:**

#### E. MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN INFORMATION:



If your plan type is multi-jurisdictional, a Letter of Commitment (LOC) from each participating jurisdiction is required. Use the template [here](#). A separate LOC must be executed by each participating jurisdiction and submitted to the lead agency and NV DEM jointly. The subapplication must include an LOC for each identified jurisdiction clearly stating commitment to participate in the development of the plan. Being recognized as a member of an approved multi-jurisdictional plan verifies a local agency's eligibility for hazard mitigation grant funds if they meet the participation criteria set forth in the letter.

- Enter the names of all the jurisdictions that will be included in your plan.



- Enter the County name included in the plan.
- Enter all the congressional district(s) within plan jurisdictions from <https://www.census.gov/mycd/>.
- Enter the exact title of the Letter of Commitment (LOC) electronic file that will be included on the required CD-RW Discs and place hard copies of each LOC in the LOC tabbed section of the binder.
- Identify the population of the jurisdiction applying for the planning grant using current census data.

#	JURISDICTION	COUNTY	CONGRESSIONAL DISTRICT #	TITLE OF ATTACHED LOC	POPULATION
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					

**i** If more than 15 jurisdictions will be participating in your multi-jurisdictional plan; attach all information on a separate sheet and type the name of the attachment in box 1.

**STOP** COMPLETE SECTION F IF YOU SELECTED 8.A.2. OR 8.A.4. OR 8.A.6. ABOVE:

**F. PLAN UPDATES:**

Describe why the update to your plan is needed and describe how the update will build on your existing approved mitigation plan.

HMPs updates are required every five years. Our last state plan update was in 2018 and the next plan update is due October 2023. This current update will build upon our already established enhanced state plan by utilizing our Working Group.

**PLANNING INFORMATION**

**9. PLANNING INFORMATION:**

**A. PLAN TITLE:** State of Nevada Enhanced State Multihazard Mitigation Plan

Use the same plan title used in your approved planning NOI.

**B. PLANNING LOCATION:**

Provide a detailed location in the box below. Describe the planning area, including any non-contiguous land holdings or assets, and demographics.

Statewide – all counties. See included documents labeled 0-1 through 0-4.

**C. EXISTING PLANS:**

Identify existing plans, studies, reports, involvement for current mitigation activities (e.g., General Plan, Capital Improvement Plan, Fire Plan, etc.):

2018 NV State Multihazard Mitigation Plan, State EOP, all other state plans, etc.

**D. OTHER PLANNING ACTIVITIES/INITIATIVES:**

Identify involvement with other mitigation activities (i.e., Flood Plan, Debris Plan, Local Recovery Plan, adoption and enforcement of codes/ordinances that promote mitigation, Climate Change reduction efforts, protection of environment, address sustainability, etc.).

Mitigation successes, building codes, all things required with our state plan update.

**E. CONSULTANT:**

Will a consultant be hired to assist with the planning development process? Yes  No

If yes, include the following information in the box below or attach copies if known:

- Request for proposals (RFP's)
- Bid process
- Description of responsibilities
- Clarify at what point the consultant's responsibilities will be fulfilled (i.e., duties will be fulfilled when FEMA notifies jurisdiction of plan approval)

A contract employee will be hired through our temp agency who will manage the update of the plan working with the state hazard mitigation officer and other mitigation staff and the working group.

***i* RECOMMENDATION: CONSULTANT'S DELIVERABLE RESULTS IN A FEMA APPROVED AND LOCALLY ADOPTED PLAN.**

**10. SCOPE OF WORK (SOW):**

**STATE EXACT SOW DOCUMENT TITLE:** State HMP SOW

- Describe the entire SOW of planning in clear, ample detail.
- Must provide a thorough description of **all activities** to be undertaken.
- Must be written in sequential order from start to finish of the plan.
- Describe method and schedule of monitoring, evaluating, and updating the plan within the 5-year cycle.

**  INSERT THIS DOCUMENT IN THE SOW SECTION OF THE BINDER.**

## WORK SCHEDULE INFORMATION

### 11. PLANNING WORK SCHEDULE:

The intent of the work schedule is to provide a realistic appraisal of the time and components required to complete the plan.

- Describe the major milestones and the duration of time to complete each one.
- Show activity duration in months.
- The work schedule must include six months for State and FEMA review/revisions/approval, appropriate time for local adoption and 90 days for grant close-out.

WORK SCHEDULE EXAMPLE		
#	DESCRIPTION	TIMEFRAME
1.	Procure a consultant	3 months
2.	Develop planning team	2 months
3.	Community and stakeholder outreach	3 months
4.	Planning process for hazard identification	3 months
5.	Planning process for risk assessment	3 months
6.	Mitigation strategy	2 months
7.	Maintenance plan development	1 month
8.	Plan draft (with community/stakeholder input)	3 months
9.	NV DEM/FEMA Review/Revisions	6 months
10.	Local Plan Adoption	2 months
11.	Grant Close-out	3 months
<b>TOTAL MONTHS:</b>		<b>31 months</b>



**TOTAL PLANNING DURATION (INCLUDING CLOSE-OUT) CANNOT EXCEED A 36 MONTH PERIOD OF PERFORMANCE (POP).**

#	DESCRIPTION	TIMEFRAME
1.	Hire contractor as temporary contract employee	1 month
2.	Update of Hazard profiles	6 months
3.	Vulnerability Assessment	6 months
4.	Capability Assessment	6 months
5.	Mitigation Activities and Public Outreach Report	8 months
6.	HAZUS Runs	8 months
7.	Review and Update Appendices	12 months
8.	Update edits of current HMP	16 months
9.	Update Review and Approval by Working Group	12 months
10.	FEMA Review and Approval	3 months
11.	Plan Adoption by Governor	1 month
12.		
13.		
14.		
15.		
16.	<b>STANDARD VALUE (DO NOT CHANGE)</b> NV DEM/FEMA Review/Revisions	6 months
17.	Local Plan Adoption	
18.	<b>STANDARD VALUE (DO NOT CHANGE)</b> Grant Close-out	4 months
<b>TOTAL MONTHS:</b>		<b>36</b>

If more lines are needed than provided, indicate the title of document in box 1 and attach a separate work schedule in the schedule section of binder.

## HAZARD INFORMATION

### 12. HAZARD & RISK ANALYSIS:

#### A. HAZARD ANALYSIS TYPE:

Select the hazard(s) below that this plan will address. Select as many as needed.

- |   |   |  |  |
|---|---|--|--|
| <input checked="" type="checkbox"/> BIOLOGICAL      | <input checked="" type="checkbox"/> EARTHQUAKE  | <input checked="" type="checkbox"/> LAND SUBSISTENCE | <input checked="" type="checkbox"/> TERRORIST        |
| <input checked="" type="checkbox"/> CHEMICAL        | <input checked="" type="checkbox"/> FIRE        | <input checked="" type="checkbox"/> MUD/LANDSLIDE    | <input checked="" type="checkbox"/> TORNADO          |
| <input checked="" type="checkbox"/> CIVIL UNREST    | <input type="checkbox"/> FISHING LOSSES         | <input type="checkbox"/> NUCLEAR                     | <input checked="" type="checkbox"/> TOXIC SUBSTANCES |
| <input type="checkbox"/> COASTAL STORM              | <input checked="" type="checkbox"/> FLOOD       | <input checked="" type="checkbox"/> SEVERE ICE STORM | <input checked="" type="checkbox"/> TSUNAMI          |
| <input type="checkbox"/> CROP LOSSES                | <input checked="" type="checkbox"/> FREEZING    | <input checked="" type="checkbox"/> SEVERE STORM(S)  | <input checked="" type="checkbox"/> WINDSTORM        |
| <input checked="" type="checkbox"/> DAM/LEEVE BREAK | <input checked="" type="checkbox"/> HUMAN CAUSE | <input checked="" type="checkbox"/> SNOW             | <input type="checkbox"/> OTHER (describe below):     |
| <input checked="" type="checkbox"/> DROUGHT         | <input type="checkbox"/> HURRICANE              | <input checked="" type="checkbox"/> SPECIAL EVENTS   |  |

#### B. DESCRIBE PAST AND FUTURE PROBLEMS/HAZARDS/RISKS:

1. Describe the problem(s) this plan is attempting to solve and the expected outcome. Describe in detail how the plan will reduce the effects of hazards and how the plan will eliminate or reduce risks.

This plan addresses the natural hazards that affect the State of Nevada. This update will address the hazards listed in the hazard section of our current plan. Regarding mitigation actions, the Working Group will decide which hazards to address in the mitigation actions section and provide the mitigations and potential actions for this section. The plan will reduce or eliminate the effects of hazards via the mitigation actions. The State plans to add additional high-risk hazards to this section.

2. History: Describe the past hazards, risk to life and risk to safety in the community. Describe the type, location, and extent of hazards. Include previous occurrences (repetitive losses) and the probability of future events.

The top three hazards in Nevada include flood, wildfire, and earthquake. These are all hazards that occur the most often throughout the state and impact risk to both life and property. See attachments.

3. Describe the vulnerability to identified hazards. Includes an overall summary of each hazard and its effect on the community, including a general description of types of structures affected by each hazard.

See attached SOW.

4. List improvements to the community that eliminated or reduced hazards/risks for at least the last 25 years.

See attached SOW.

5. Describe types and numbers of existing and future structures and facilities that have the potential to incur damages and an estimate of potential dollar losses.

N/A

6. Description of mitigation goals and objectives to reduce or avoid long-term vulnerabilities to the identified hazards.

See attachment labeled Document 1-4 \_Strategic Goals and Actions.

## COST ESTIMATE INFORMATION

### 13. HMGP COST ESTIMATE SPREADSHEET:

#### A. COST ESTIMATE INSTRUCTIONS:

Using the [HMGP Cost Estimate Spreadsheet](#), provide a detailed cost estimate breakdown.

- Cost estimate describes the anticipated costs associated with the SOW for the proposed mitigation plan.
- Cost estimates must include detailed estimates of cost item categories.
- Only include costs that are directly related to performing the mitigation activity.
- Documentation that supports the cost estimate must be added to the budget section of the binder.
- Eligible costs must be included in both the cost estimate spreadsheet and the scope of work to be reimbursed.

COST ESTIMATE SPREADSHEET EXAMPLE				
ITEM NAME	UNIT QTY	UNIT	UNIT COST	COST EST TOTAL
PLAN INITIATION	80	HR	\$120	\$9,600
PUBLIC ENGAGEMENT	40	HR	\$60	\$2,400
REVIEW OF PLANS	140	HR	\$80	\$11,200
HAZARD/RISK ASSESSMENT	100	HR	\$150	\$15,000
LOCAL PLAN UPDATES	200	HR	\$67	\$13,400
COMPILE DRAFT	120	HR	\$120	\$14,400
REVIEW OF DRAFT	67	HR	\$120	\$8,040
APPROVAL/ADOPTION	50	HR	\$150	\$7,500
PLANNING CLOSE-OUT	80	HR	\$150	\$12,000
<b>TOTAL COST ESTIMATE:</b>				<b>\$93,540</b>



**DO NOT COPY EXAMPLE  
TO SUBAPPLICATION**

#### B. INELIGIBLE COSTS:

The following are ineligible line items:

- Lump Sums
- Contingency Costs
- Miscellaneous Costs
- "Other" Costs
- Indirect Charges
- Overhead Costs
- Cents (must use whole dollar amounts, round unit prices up to whole dollars)

#### C. PRE-AWARD COSTS:

Eligible pre-award costs are costs incurred after the disaster date of declaration, but prior to grant award. Pre-award costs directly related to developing the application may be funded.

- Submission of subapplication
- Workshops or meetings related to development



**SUBAPPLICANTS WHO ARE NOT AWARDED FUNDS WILL NOT RECEIVE REIMBURSEMENT FOR PRE-AWARD COSTS.**


#### D. COST ESTIMATE NARRATIVE:


FEMA requires a cost estimate narrative that explains all projected expenditures in detail. The cost estimate narrative must mirror the cost estimate spreadsheet and should include a full detailed narrative explaining and supporting the costs listed in the Cost Estimate Spreadsheet. If your cost estimate includes City, County, or State employees' time, include personnel titles and salary/hourly wages plus benefits for a total hourly cost. Detailed, functional timesheets must be retained.

- Title the document "Cost Estimate Narrative" and include in the budget section of binder.

**14. FEDERAL/NON-FEDERAL SHARE INFORMATION:**

**A. FUNDING RESTRICTIONS:**

 HMGP funding is restricted to a maximum of \$150,000 for each single jurisdictional planning subapplication and up to \$250,000 if multi-jurisdictional. FEMA will contribute up to 75% of the total planning cost. A minimum of 25% of the total eligible costs must be provided from a non-federal source. State does not contribute to local cost share. Some grant situations may be allocated at 90%/10%.

 A jurisdiction may contribute an amount greater than the 25% non-federal share.

**B. TOTAL PLANNING COST ESTIMATE:**

241,712.40
------------

Enter total cost formulated on [HMGP Cost Estimate Spreadsheet](#) ENTER \$ IN BOX ABOVE

<b>FEDERAL SHARE (90% MAXIMUM)</b>	REQUESTED AMOUNT:	218,963.60
		ENTER \$ IN BOX ABOVE
	PERCENTAGE AMOUNT:	90%
		ENTER % IN BOX ABOVE
<b>NON-FEDERAL SHARE (10% MINIMUM)</b>	REQUESTED AMOUNT:	22,748.80
		ENTER \$ IN BOX ABOVE
	PERCENTAGE AMOUNT:	10%
		ENTER % IN BOX ABOVE



**VERIFY ALL AMOUNTS ENTERED ARE ACCURATE.**

**INCORRECT AMOUNTS WILL DELAY PROCESSING OF YOUR SUBAPPLICATION.**

**C. NON-FEDERAL MATCH SOURCE - MATCH COMMITMENT LETTER:**

- Use the [Local Match Commitment Letter Template](#) to complete this section and add completed letter to the match section of the binder.
- A signed Match Commitment Letter must be provided on agency letterhead.
  - The non-federal source of matching funds must be identified by name and type.
  - If "other" is selected for funding type, provide a description.
  - Provide the date of availability for all matching funds.
  - Provide the date of the Funding Match Commitment Letter.
  - Funds must be available at the time of submission unless NV DEM prior approval has been received.
  - If there is more than one non-federal funding source, provide the same information for each source on an attached document.
  - Match funds must be in support of cost items listed in the cost estimate spreadsheet.
  - Requirements for donated contributions can be found in 2 CFR 200.306.

**MAINTENANCE ASSURANCE INFORMATION**

**15. PLANNING MAINTENANCE INFORMATION:**

**A. MAINTENANCE ASSURANCE LETTER:**

- Using the [Planning Maintenance Letter Template](#), identify all maintenance activities required to maintain the plan.

# PRINT THIS PAGE – ORIGINAL SIGNATURE IS REQUIRED

## AUTHORIZATION

The undersigned does hereby submit this subapplication for financial assistance in accordance with the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program (HMGP) and the State Hazard Mitigation Administrative Plan and certifies that the subapplicant (e.g., organization, city, or county) will fulfill all requirements of the program as contained in the program guidelines and that all information contained herein is true and correct to the best of our knowledge.

Subapplicant Authorized Agent

**NAME:** David W. Fogerson

**TITLE:** Chief

**ORGANIZATION:** Nevada Division of Emergency Management

**SIGNATURE:** \_\_\_\_\_

**DATE:** \_\_\_\_\_



## Budget Narrative Detail Worksheet

**A. Contractor.** One contract employee will lead the update of the State HMP Update. Duties will include coordinating with the state HM planner and SHMO for coordination of work with the Nevada Hazard Mitigation Working Group meetings. Monthly meetings are planned, and the contract employee will either be in person or remote for those meetings. They will lead the Working Group in the update of each section of the State HMP and ensure the updated State HM plan meets both the standard and enhanced FEMA requirements in the new HMP Update review tool and guidance. Duties will also include editing the current plan for this update. The contract employee will also be responsible for HAZUS updated runs and coordinating all required updates.

Name/Position	Computation (Quantity x unit of measure x unit price)			Cost
<b>Contractor</b>	<b>1,500</b>	<b>HR</b>	<b>\$140.00</b>	<b>\$210,000.00</b>
<b>Total Personnel</b>				<b>\$210,000.00</b>

**B. Travel.** The plan is for mitigation staff for make nine (9) trips to Las Vegas.

Purpose of Travel	Location	Item	Computation (Quantity x unit of measure x unit price)			Cost
<b>Coordination of Meetings</b>	<b>Variable</b>	<b>Airfare</b>	<b>9</b>	<b>EA</b>	<b>\$1,500</b>	<b>\$13,500.00</b>
<b>Coordination of Meetings</b>	<b>Variable</b>	<b>Hotel</b>	<b>18</b>	<b>EA</b>	<b>120</b>	<b>\$ 2,160.00</b>
<b>Coordination of Meetings</b>	<b>Variable</b>	<b>Per Diem</b>	<b>27</b>	<b>EA</b>	<b>69</b>	<b>\$ 1,863.00</b>
<b>Coordination of Meetings</b>	<b>Variable</b>	<b>Vehicle Rental</b>	<b>27</b>	<b>EA</b>	<b>45</b>	<b>\$ 1,215.00</b>
<b>Total Travel</b>						<b>\$18,738.00</b>

**C. Supplies and Operating.** Please see the HMA Guidance 2015 document for eligible management costs. Subapplicants can apply for 5% of the federal cost at 100% with no cost share on management costs. Please describe your management costs and what they will be used for here and list out below.

Description	Computation (Quantity x unit of measure x unit price)			Cost
Printing	5,000	EA	0.05	\$250.00
Supplies	20	EA	25.00	\$500.00
<b>Total Other</b>				<b>\$750.00</b>

**D. Management Costs.** Calculating 5% of the total cost of the project which is \$229,488.00. that amount is \$11,474.40. The management costs will be utilized for our contract mitigation, Ryan Gerchman pay as he works on this project. The amount did not exactly come out probably because of rounding.  $338 \times 33.95 = 11,475.10$ . However, if you divide 11,474.40, you get 33.95. I left the calculation as it is.

Description	Computation (Quantity x unit of measure x unit price)			Cost
Mitigation planner	338	hr	33.95	\$ 11,474.40
				\$
<b>Total Other</b>				<b>\$ 11,474.40</b>

**Budget Summary.** This is just a summary of your budget costs.  $\$206,739.20 + \$11,474.40$  (5% of \$229,488.00) = \$218,963.60 with a nonfederal cost of \$22,748.80 and total project cost including management costs at 100% to be \$241,712.40. The summary includes hiring a contract employee to oversee the update of the plan, travel for mitigation staff, supplies and operating, and management costs which were added to the federal amount after the total project cost was determined.

Budget Category	Federal Amount	Non-Federal Amount
A. Contract Employee	\$187,251.20	\$ 22,748.80
B. Travel	\$ 18,738.00	\$
C. Supplies and operating	\$ 750.00	\$
D. Management Costs	\$ 11,474.40	\$

Total Requested Federal Amount	Total Non-Federal Amount
\$218,963.60	\$22,748.80
<b>Combined Total Project Costs</b>	
\$241,712.40	

# HMGP Cost Estimate Spreadsheet

DATE	JURSDICTION NAME	DISASTER & PROJECT OR PLANNING #	PROJECT OR PLANNING TITLE
10/3/2022	Statewide - NV DEM	DR-4523	State HMP Update

#	Item Name	Unit Quantity	Unit of Measure	Unit Cost	Cost Estimate Total
1	Pre-Award Costs:				\$ -
2	Contractor	1	EA	\$ 170,000.00	\$ 170,000.00
3	Travel	9	EA		\$ -
4					\$ -
5					\$ -
6					\$ -
7					\$ -
8					\$ -
9					\$ -
10					\$ -
11					\$ -
12					\$ -
13					\$ -
14					\$ -
15					\$ -
16					\$ -
17					\$ -
18					\$ -
19					\$ -
20					\$ -
21					\$ -
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23					\$ -
24					\$ -
25					\$ -
26					\$ -
27					\$ -
28					\$ -
29					\$ -
30					\$ -
31					\$ -
32					\$ -
33					\$ -
34					\$ -
35					\$ -
36					\$ -
37					\$ -
38					\$ -
39					\$ -
40					\$ -
<b>Total Project Cost Estimate:</b>					<b>\$ 170,000.00</b>

## Hobart Creek Reservoir Dam (HCRD) Seismic Retrofit

### SCOPE OF WORK

#### 1. Advanced Assistance

This project is a result of a successful Advanced Assistance request during the 2019 Pre-Disaster Mitigation grant program cycle (PDMC-PL09-NV-2018-002). The objectives were to evaluate and analyze the dam. The evaluation provided direction about feasible mitigation actions to reduce the risk of the HCRD’s catastrophic failure due to earthquake or severe weather. A catastrophic failure of a dam is characterized by the sudden, rapid, and uncontrolled release of impounded water.

##### 1.1 Outcomes of the Advanced Assistance

The activities completed with the funds from the 2019 Advanced Assistance grant are listed in Table 1 below. These activities provided enough information for the engineers and experts to determine the best option for long-term risk reduction of a catastrophic failure of the Hobart Carson Reservoir Dam (HCRD), was a to rehabilitate the dam. Using the [National Dam Rehabilitation Program’s definition](#) of rehabilitation as “repair, replacement, reconstruction, or removal of a dam that is carried out to meet applicable State dam safety and security standards.” In this case, the project will replace the existing reservoir dam for safety and to meet current state standards.

2019 Advanced Assistance Grant Outcomes	
Aquatic Resources Delineation Report	30% Design Plans
Draft Archaeology Report	Seismic Hazard Analysis
Draft Historical Resources Report	
Gathering of BCA Data in Preparation of the resulting Project Application	

The resulting information gathered by the analysis and studies developed by the Advanced Assistance create the problem statements and the actions or solutions to reduce the risk of the HCRD’s catastrophic failure from the natural hazards mentioned above. These documents are cited and attached throughout the application.

#### 2. Problem Statement & Solution

The following problem statement, and solution/action (this project) were created from the studies:

1. PROBLEM STATEMENT: The HCRD will fail due to the poor compaction of the current soils
2. SOLUTION: Rehabilitation of the dam to bring the soil compaction to current standards

#### 3. Background:

To better portray the Hobart Creek Reservoir Dam (HCRD) project, a description of the HCRD, how it works, the flow of water beyond it, and the role it plays in the Marlette Water System (MWS), a short narrative is shown in attachment 13.10, Operation of HCRD and MWS. The natural hazards of most concern are earthquake and severe weather such as winter storms. These hazards are documented in attachment 13.5 Hazards Impacting HCRD and 13.11 Historical Weather Events provided in collaboration with the Reno National Weather Service. The Draft Historical Resource Report, attachment 4.2 provides

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## Hobart Creek Reservoir Dam (HCRD) Seismic Retrofit

### SCOPE OF WORK

the history of the two previous HCRD catastrophic failures in what is believed were severe winter storms.

The Seismic Hazard Analysis, attachment 4.1, page 2, states that a liquefaction analysis of the earthen dam materials at a depth of 10 feet indicate the earthen dam materials will liquefy when subjected to a peak ground acceleration of 0.26g (or greater). The peak ground acceleration versus mean magnitude, as determined utilizing the U.S.G.S. "Unified Hazard Tool". This graph indicates a peak ground acceleration of 0.26 correlates to a mean magnitude of 6.48. Additionally, a mean magnitude of 6.48 correlates to an estimated return period of 150 years. This statement provides the details regarding the potential for liquefaction of the dam.

An inundation map of the area affected by the failure of the dam is presented in the Emergency Action Plan, pages 21 and 22 (attachment 13.7). The following text is also from the Emergency Action Plan.

"The inundation map should represent a conservative estimate of the consequences of a dam failure. As shown in Figure 2 of the main report and A-2 from Appendix A,  $t_f=0.3$ hr simulation resulted in the highest peak outflow and water surface elevation along the Franktown Creek. For this reason, the  $t_f=0.3$ hr simulation was used to create the inundation map for the sunny day failure (see Figure 1, 2 of Main Report). Peak flow at the Dam is estimated to be 6473 cfs."

#### 4. Project Benefitting Area

The rehabilitation of Hobart Creek Reservoir Dam, as an essential part of the Marlette Water System, will benefit residents of:

1. Washoe County downstream of the dam
2. Carson City - as a critical part of their summer water source
3. Virginia City - as the only source of water
4. Town of Gold Hill - as the only source of water
5. Town of Silver City - as the only source of water
6. State of Nevada as the owner of the HCRD

Regional:

- Safety of transportation lifelines. The region includes residents of the Truckee Meadows (Reno-Sparks and surrounding communities are referred to as the Truckee Meadows), South Lake Tahoe, Douglas County, and other counties south and east of Carson City traveling to Reno. See Project Benefit Ara, attachment 5.8 for a map of the Region.
- Preservation of social, cultural, and environmental assets. This benefit includes the State of Nevada as the responsible party for the dam and manager and steward of the land where it is located.

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## Hobart Creek Reservoir Dam (HCRD) Seismic Retrofit

### SCOPE OF WORK

- Social: Maintenance of current trail system and primitive campground supports social well-being for the region's wildlife, residents, and its visitors.
- Cultural: Maintenance of the historical Marlette Water System's function is of cultural value to communities around it and tourism.
- Environmental: Keeping the pristineness of this remote location with no additional disruption of the Franktown Creek flow supports its natural flow into Washoe Lake. This in turn preserves the ecosystem, wetlands, and beauty of Washoe Lake and Washoe Valley.
- Continued collaboration and partnerships among the State, Counties, towns, the University, and the National Weather Service as stakeholders.
  - State as owner
  - Washoe County as the HCRD is within its jurisdiction & as potential source of water in the future.
  - Carson City as its seasonal supply of water
  - The towns of Virginia City, Gold Hill, and Silver City as their only source of water
  - The University to link the seismic equipment and camera to its seismic and wildfire early warning systems.
  - For the National Weather Service to link the only weather station in the general vicinity for data gathering.

Benefits to Washoe County are:

- A reduction in risk of flood for the residents and farmers downstream of the dam.
- Increased safety of I-580, the primary transportation lifeline in a north/south direction from Reno/Carson City.
- Continuation of the economic value of residents and tourism traffic through Washoe Valley to the Truckee Meadows.

Benefits to Carson City:

- Carson City's benefit may be a seasonal occurrence. However, it is during the summer months when demand for this community lifeline (potable water) is at its highest. With increased drought potential projected by climate change, the benefit may no longer constitute a seasonal occurrence.

Benefits to Storey County and its Towns:

- The Gold Hill, Virginia City, and Silver City towns benefit from increased resilience of the water community lifeline (potable water).

Attachment 13.4 called Description of Communities provides the location, land, population, economy of each of the benefitting communities including how it is linked to the project, except for the town of Gold Hill due to lack of reliable data.

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## Hobart Creek Reservoir Dam (HCRD) Seismic Retrofit

### SCOPE OF WORK

#### 5. Project Impact Area

The project impacts the immediate vicinity of the Hobart Creek Reservoir Dam. The residents in Carson City, living in the vicinity to the access road for the project site will see increased traffic related to engineering design and construction. NSPWD staff are familiar with the community and regularly attend the neighborhood's homeowners' association meetings to maintain open communication. Figure 1 contains a map of this location. The neighborhood consists of homes on large lots, 5 acres or more. As seen on the map, it is at the northwest side of Carson City on the foothills of the Sierra.



Figure 1::Aerial View of Lakeview Neighborhood, Carson City & Entrance to the Project's Access Road

During the implementation of the project, [Nevada Division of State Parks](#) will monitor the need for closure of trails and the primitive campground near the HCRD. It will also support the public outreach during construction through its website and the posting of flyers at trail heads.

The Nevada Division of Wildlife (NDOW) is familiar with the project and will plan to not stock the HCRD during its rehabilitation. The Department's [website](#) will also display information about the project.

The public outreach campaign will start upon approval of the application. Public outreach is planned through the individual stakeholder websites. The posting of flyers in local public gathering locations such as libraries, Department of Motor Vehicle offices, churches, trail heads, among other locations will begin as soon as possible to keep the public aware of the project's progress and impacts to the nearby area.

The flow of water to Lakeview Tank (storage), see Figure 2 of attachment 13.10, which feeds the pipeline to Virginia City, Gold Hill, and Silver City will continue with little to no impact for these towns. NSPWD will work with the selected engineering firm and construction company to minimize any disruption of Carson City's seasonal demand for water.



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## Hobart Creek Reservoir Dam (HCRD) Seismic Retrofit

### SCOPE OF WORK

#### 6. Summary of Project Tasks

The major tasks planned for the rehabilitation of the dam are listed below. Details of the work involved in each task is found in attachment 4.1 Project Description Overview. Additional details about the project are found beginning on page 14 of the Geotechnical Report (attachment 4.3). These pages present information about the General Site Grading, Structural Fill Gradation Specifications Table, Common Fill Gradation Specification Table, Foundation Design Criteria, Retaining Walls, Gravel Roadway Design, Recommended Gravel Roadway Section Table, and the Concrete Slab Design. Also, as part of the project, a 30% design schematic is available in attachment 3.1 Preliminary Site Plans.

The project will rehabilitate the current earthen dam. The replacement of the structure, spillway, outlet piping, valves, controls, embankment piezometers, and addition of sediment filters to collect seepage.

The replacement will take place during late spring, summer and fall, when weather allows traveling on the access road and working in the remote location. Throughout the HCRD seismic retrofitting process, NSPWD will ensure compliance with activities mitigating historic assets.

- a. Confirm the condition of the access road is suitable to convey construction equipment.
- b. Install a cofferdam to control water while working on the project, ensuring water continues to flow into Franktown Creek.
- c. Excavate the existing earthen material to the underlying bedrock elevation. Mix the excavated suitable material and new cohesive soils as needed. Perform maintenance of the pond volume in the reservoir.
- d. All materials removed in this process will be disposed of in accordance with local, state, and federal requirements. The sludge from the pond maintenance will be used by a local composting business.
- e. Build inlet structure on lake side with two pipes staggered in elevation.
- f. Construct 10 feet x 10 feet masonry structure on the dam crest to house /protect the new automated system.
- g. Extend new replacement outlet pipes through the new dam.
- h. Replace and compact soil mixture to current standards.
- i. Remove cofferdam.
- j. Replace existing spillway and add a new flow gage and valves.
- k. Replace existing manual control system with automated control system, and install seismic monitoring equipment.
- l. Install a weather station in collaboration with the Reno National Weather Service.



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## Hobart Creek Reservoir Dam (HCRD) Seismic Retrofit

### SCOPE OF WORK

#### 7. Additional Benefits

##### 5.1 Economic Benefits

The Nevada Department of Wildlife manages the stocking of trout in the HCRD. It also manages the fees received from fishermen using the HCRD for recreational purposes. The fees support the fishery and the work done by the agency towards the preservation of wildlife and its habitat throughout Nevada.



Figure 2: Fishing at HCRD

##### 5.2 Social Benefits

The Nevada Division of State Parks manages a network of hiking trails in the vicinity of the proposed project area. The scenic location near Lake Tahoe is a favorite for residents and visitors alike. A primitive camping ground is near the HCRD as well. Figures 2 and 3 show maps of the HCRD trails. Dotted lines in these maps depict other functioning hiking trails.

For the last 5 years, the local Boy Scouts Troop has learned about the Marlette Water System and completed social work in cleaning trash and vegetation at the Hobart Creek Reservoir Dam. Please see the Boy Scout Work email in Figure 4 below showing the note about this project from the Manger of the Water System.



Figure 3: Hobart Creek Reservoir from Carson City

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Hobart Creek Reservoir Dam (HCRD) Seismic Retrofit

SCOPE OF WORK

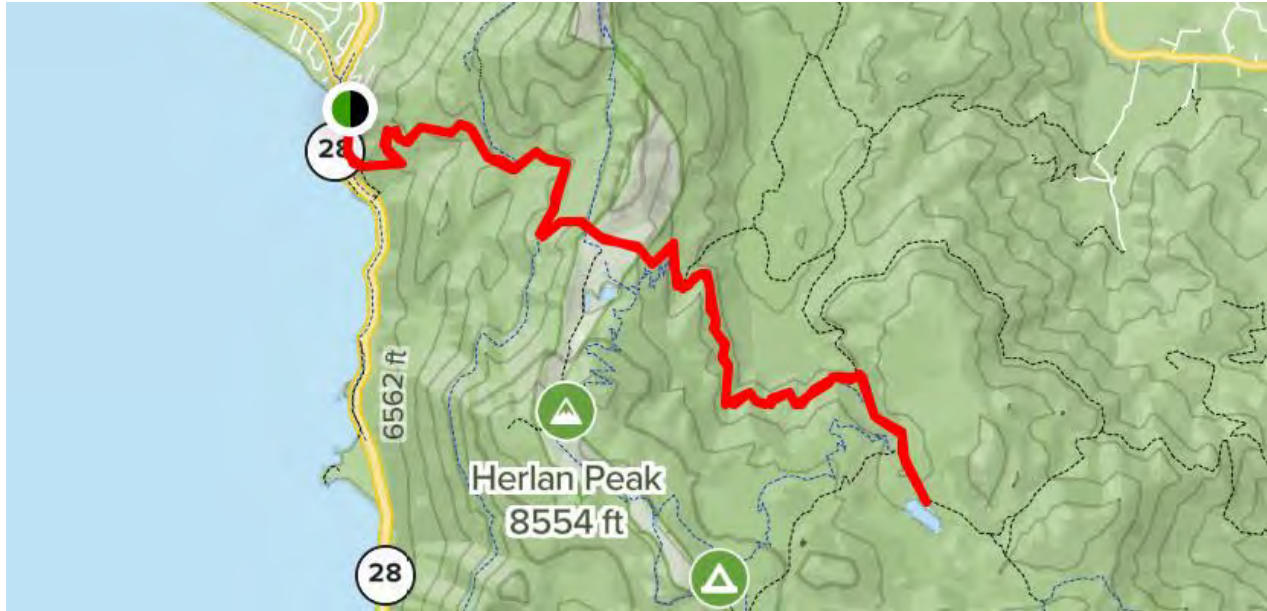


Figure 4: Hobart Creek Reservoir from Incline Village

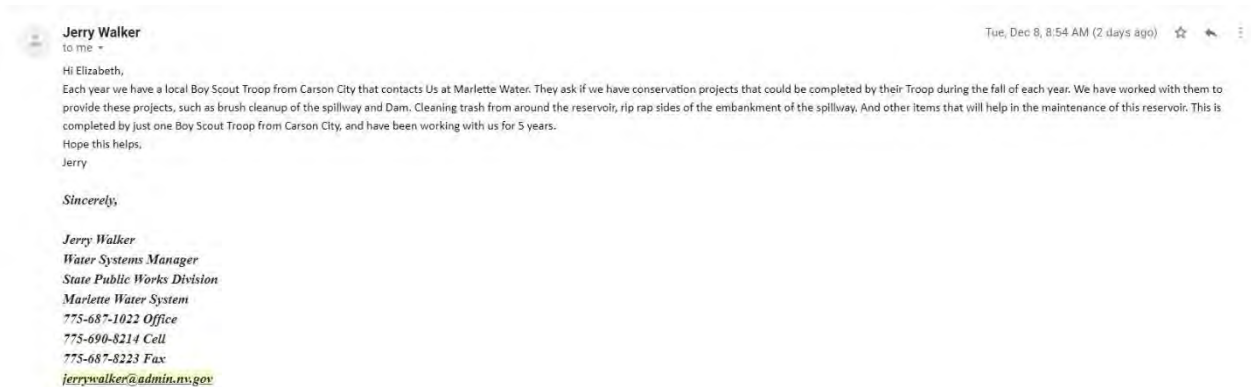


Figure 5: Email About Boy Scouts Work

5.3 Collaboration and Public Outreach

The PW Division manages a Marlette Water System “Users Group.” The group is comprised of the communities who purchase water from the System as well as stakeholders who support the continued well-being of the system. This group meets regularly (quarterly).

Table 1: Marlette Water System User's Group Participants

User's Group Participants
Carson City
Nevada Department of Wildlife
Nevada State Parks

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## Hobart Creek Reservoir Dam (HCRD) Seismic Retrofit

### SCOPE OF WORK

User's Group Participants
Truckee Meadows Water Authority (Washoe County)
State Public Works Division
Storey County

In addition to the above User's Group, the State of Nevada Public Works Division and the Marlette Water System staff coordinate and collaborate with other organizations in the region. One such organization is the Carson Water Subconservancy District. This organization is tasked with the protection of the entire watershed for the Carson River. The Marlette Water System is part of this expansive watershed. Attachment 13.14 Letters of support holds signed letters of support for this project from the User's Group and the regional collaborating organizations.

As part of the Public Works Division, its Board is tasked with recommending to the Governor the priority for construction of Nevada's projects for capital improvements. The Board is also responsible for adopting regulations and presiding over appeals regarding the qualifications of contractors and disputes regarding contracts. The Board at its meeting of August 26-27, 2020, presented this project to the Governor as priority 6 in capital improvement projects. Please see attachment 13.13. Note that by law, meetings of the Board comply with the Nevada Open Meeting Law and is posted and open to the public.

### 8. Detailed Description of the Project

The Hobart Creek Reservoir Dam (HCRD) has been in place since 1877. The Hobart Creek Reservoir Dam as part of the Marlette Water System was nominated for the National Register of Historic Sites in 1992. Although formal registration has not occurred, the NSPWD has worked and will continue to work closely with the State Historic Preservation Officer to ensure all cultural, and historical requirements are met during the rehabilitation process.

To better present the project, it is necessary to provide the history and background of this dam. To that end, please see attachment 6.1 HCRD Description w Photos.

The project will rehabilitate the current earthen dam. The replacement of the structure, spillway, outlet piping, valves, controls, embankment piezometers, and addition of sediment filters to collect seepage.

The replacement will take place during late spring, summer and fall, when weather allows traveling on the access road and working in the remote location. The detailed schedule for implementing the tasks described below is in attachment 7.2 HCRD Gantt Chart.

- a. Confirm the condition of the access road is suitable to convey construction equipment.
- b. Install a cofferdam to control water while working on the project, ensuring water continues to flow into Franktown Creek.
- c. Excavate the existing earthen material to the underlying bedrock elevation. Mix the excavated suitable material and new cohesive soils as needed. Perform maintenance of the pond volume in the reservoir.

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## Hobart Creek Reservoir Dam (HCRD) Seismic Retrofit

### SCOPE OF WORK

- d. All materials removed in this process will be disposed of in accordance with local, state, and federal requirements. The sludge from the pond maintenance will be used by a local composting business.
- e. Build inlet structure on lake side with two pipes staggered in elevation.
- f. Construct 10 feet x 10 feet masonry structure on the dam crest to house /protect the new automated system.
- g. Extend new replacement outlet pipes through the new dam.
- h. Replace and compact soil mixture to current standards.
- i. Remove cofferdam.
- j. Replace existing spillway and add a new flow gage and valves.
- k. Replace existing manual control system with automated control system, including seismic monitoring equipment.
- l. Upgrade the current pedestrian grade bridge to a vehicular grade.
- m. Staging areas will be in previously disturbed locations.

Please see the attachment 5.5 HCRD Vicinity Map showing a map of the project's site and the access road used to convey equipment, material, and workers to the location. The dam site will be accessed via Franktown Creek Road from Tanks Road. The immediate vicinity near the dam site is heavily vegetated with evergreen trees. The road runs generally north-south in relation to Franktown Creek, for approximately 0.4 miles from the intersection of Marlette Lake Road and Franktown Creek Road to the dam. Please see attachment 5.2 Existing Access Road showing a map of the access road and the project site.

The 30% design of the new dam is viewable in attachment 3.1 Preliminary Site Plans.

Any additional fill necessary for the project will come from suitable native materials, or from a commercial source, or a geotechnical engineer-approved, and regularly maintained stockpile.

Staging areas would be used for the storage of materials, equipment, and fuels used to construct the proposed action. The State of Nevada Public Works Division anticipates that materials and equipment staging will be on existing disturbed areas immediately adjacent to the dam, especially on the area upstream of the dam within the pond pool area, or along the existing access route, in areas disturbed as part of the dam rehabilitation work, or in a parking lot or staging area within the Hobart Reservoir campground. Staging areas will meet the following criteria.

- Previously disturbed areas, e.g., cleared parking areas or road rights of way.
- Staging in wetland or floodplain areas will be avoided.
- An appropriate revegetation plan will be completed and enacted. Tree and vegetation removal will be avoided except where removal is required for the successful construction of the repairs, where vegetation and tree removal are unavoidable.
- Areas where archeological sites have been identified will not be used. A 10-foot buffer will be established around these areas to protect them from disturbance, as identified and observed by a qualified archaeologist.



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## Hobart Creek Reservoir Dam (HCRD) Seismic Retrofit

### SCOPE OF WORK

- Areas with known contamination will not be used.
- The staging areas will have the ability to be secured from public access.
- Any disturbance at staging areas will ultimately be restored to pre-project conditions upon the completion of construction.

Because completion of tasks is dependent on weather, the requested period of performance for the implementation of the project is 36 months with possible early completion.

## 9. Implementation of the Project

The rehabilitation of the dam is a two-step process.

1. Upon receipt of award, NSPWD will solicit Requests for Proposal (RFP), following federal, state, and local contracting laws, for:
  - a. The completion of environmental studies and needed assessments.
    - i. Year 1 Winter/Spring
  - b. Based on these assessments and studies, the development of the design and plans for the rehabilitation.
    - i. Year 1 Summer
  - c. Acquisition of the necessary permits from the appropriate state, local, and federal agencies.
    - i. Year 1 Fall
  - d. Creation the plans and 100% designs for the rehabilitation based on the information from the completed assessments and environmental studies.
    - i. Year 2 Winter/Spring
2. The consultant will support NSPWD in the bid and selection of a construction firm.
  - a. A construction firm will be retained to build the cofferdam, dam retrofits, new outlet structure, mechanical building, spillway structure, and bridge.
    - i. Year 2 Spring/Summer
  - b. The consultant will continue to support NSPWD with the administration of the construction contract including quality assurance and control (QA/QC). Periodic inspections and construction surveys.
    - i. Year 2 Spring/Summer
    - ii. Year 2 Fall/WinterThe consultant will prepare record drawings, and a letter of substantial completion of the project.
  - c. Upon final inspection, a close out letter will be issued by the consultant.
    - i. Year 3 Summer

The NSPWD will select the consultant and construction firm through solicitation of Statements of Qualifications (SOQ) ensuring the performance expectations are met. The criteria for the SOQ are:

1. Review of technical competence and specialization
2. Expertise and ability of the individuals assigned to the project
3. Past performance with similar projects
  - 3.1. Meeting project schedule

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## Hobart Creek Reservoir Dam (HCRD) Seismic Retrofit

### SCOPE OF WORK

- 3.2. Remaining within budget
- 3.3. Change orders
- 3.4. Quality of delivered projects

Additionally, standard contract documents require submittal of progress schedules, based on milestones and specified completion dates. The standard construction agreement establishes total contract time, including substantial completion and final completion milestones. The project will be completed in 20 months. However, due to seasonal weather conditions, intermittent work is expected throughout the 36 months of the performance period.

## 10. Feasibility and Effectiveness of the Project

This project will be effective in reducing the risk of catastrophic dam failure resulting from a seismic event or severe storm. The following information is summarized from the Hobart Creek Reservoir Dam Geotechnical Report, attachment 4.3, which, in combination with the preliminary schematic found in the Preliminary Site Plans attachment 3.1, describe the technical feasibility of the project. The documents include studies and analysis to determine the proper engineering and design of the project. The Seismic Hazard Analysis, attachment 4.1, determined the HCRD currently will liquify at a 6.48 magnitude earthquake. The rehabilitation will increase resiliency to 6.61 magnitude.

The following sets out the processes to improve the safety and risk reduction for this project:

The geotechnical report was prepared in accordance with the currently accepted engineering practices in Northern Nevada. The analysis and recommendations in this report are based upon exploration performed at the locations shown on the site plan, the proposed improvements as described in the Introduction section of the Geotechnical Report (attachment 4.3) and upon the property in its condition as of the date of this report (2020). The Standard Specification for Public Works Construction (SSPWC), as distributed by Washoe County with exceptions based on engineering needs will govern all work for this project.

According to the shear wave velocity ( $V_s$  100) determined during our investigation (Appendix H of the Geotechnical Report, attachment 4.3), a 2018 International Building Code (IBC) site Class C is appropriate for the project site.

The rehabilitation of the dam involves removal of loose soils, placing the same soils, after moisture conditioning, and recompacting these soils to a minimum of 95% of the American Society for Test Materials (AMSTD) D1557 Standard. Also, to further reduce liquefaction potential, amending the fill soils with fine grained cohesive soils (clay and/or silt). These activities will also stabilize the fill slopes allowing stability in 2:1 or flatter fill slopes. Additionally, the rate of seepage through the fill soils will decrease with amendment of fine-grained cohesive soils.

Prior to placement of erosion protection, a filter will be installed. The filter may consist of Class B backfill, meeting the requirements of Standard Specifications for Public Works Construction (SSPWC), or a Mirafi 180N (or equivalent) filter fabric.

**Fill material** will be placed on existing slopes steeper than 5:1 (H:V). Therefore, the existing slopes will be benched, in equipment wide swaths, such that the benches have a negative grade into the existing

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## Hobart Creek Reservoir Dam (HCRD) Seismic Retrofit

### SCOPE OF WORK

slope of 2% (50:1, H:V). Additionally, the fill will have a “key” constructed at each toe. The “key” will be a minimum of 10 feet wide and 2 feet deep. Specialized equipment may be necessary to excavate the benches, and keys into the undisturbed moderately weathered to slightly weathered bedrock, and the fresh bedrock within few to no fractures.

**Retaining structures** over three (3) feet in height, if used, will require local code compliance, and will be engineered based on parameters described in this section of the report. The design of the retaining structures will resist the appropriate lateral earth pressures. Cantilevered walls, which capable of deflecting at least 0.01 radians, can be designed using an equivalent fluid (backfill) unit weight of 40 pounds-per-cubic-foot (pcf). However, if the wall is fixed against rotation, the design of the wall will be using an equivalent fluid (backfill) unit weight of 60 pcf. These design parameters are based upon the assumption that walls will retain only level backfill and no hydrostatic pressure will be present

**Gravel Roadway** structural section for the aggregate base utilizing an assumed R-value of 55 for the silty sand site soils is provided in the “Recommended Gravel Roadway Section” table A Traffic Index (TI) value of 5 was utilized for design for the access roads because light truck traffic is anticipated. Aggregate base should consist of Type 2, Class B material and meet the requirements of the Standard Specifications for Public Works Construction (SSPWC). Compaction of aggregate base material will be at least ninety-five percent (95%) of the laboratory maximum density, as determined by the ASTM D1557 standard.

Aggregate Base	Aggregate Base	Properly Prepared Suitable Subgrade
TI = 5	10”	12”

**Vapor barrier** is included for all interior concrete slabs where floor moisture is undesirable. The vapor barrier is a synthetic plastic sheeting at least ten (10) mils thick and meet the requirements of ASTM E1745 for Class A vapor retarder materials. The vapor barrier will be installed per manufacturer’s recommendations.

**Slab thickness** design will be based on a Modulus of Subgrade Reaction equal to two hundred (200) pounds-per-cubic-inch (pci) for construction on properly moisture conditioned and compacted structural fill/suitable subgrade. Reinforcement of concrete slabs must be as specified by the Project Structural Engineer. Exterior concrete slabs on grade will be underlaid with at least six (6) inches of Type 2 aggregate base and properly compacted /suitable subgrade subgrade.

**Exterior concrete** slabs on grade will be underlaid with at least six (6) inches of Type 2 aggregate base and properly compacted /suitable subgrade.

**Corrosion & Chemical Attack:** The tested on-site soils have a negligible water-soluble sulfate content of less than 0.1% (0.01% actual). For this project, the use of Type II cement (meeting ASTM C150) for all concrete in direct contact with on-site soil. All exterior concrete will have between four and one half and seven- and one-half percent (4.5%-7.5%) entrained air, a maximum water-cement ratio of 0.45 and comply with all other American Concrete Institute recommendations for concrete placed in areas subject to freezing. A minimum compressive strength of 4,000 psi is recommended for all external concrete. All concrete will be placed pursuant to ACI recommendations.

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## Hobart Creek Reservoir Dam (HCRD) Seismic Retrofit

### SCOPE OF WORK

**Moisture protection & drainage.** The finish surface around all structures will slope away from the foundations and toward appropriate drop inlets or other surface drainage devices. As recommended, the project will use of a minimum slope of five percent (5%) within ten (10) feet of the foundations for soil sub-grades. These grades will be maintained for the life of the project.

Installation of a weather station and a camera at the site will allow the collection of weather information specific to the site and support necessary/unnecessary winter site inspections. Nevada State Public Works Division (NSPWD) will coordinate installation of the weather station with the Reno National Weather Service. NSPWD, also contacted the University of Nevada Seismological Lab for the purpose of managing the potential link of the camera to their existing webcam network for wildfire early warning system.

### 11. Management and Completion of the Project

The implementing agency, Nevada State Public Works, has proven extensive experience and appropriate technical capabilities and levels of staffing (see org chart in attachment 13.9 About Nevada State Public Works Division). Note that NSPWD augments its technical capabilities for seismic projects by including the expertise of Mr. Melvyn Green & Associates. Melvyn Green and Associates, Inc. is a structural engineering and historic preservation firm that provides evaluation, design and research services including seismic rehabilitation, building evaluation, structural engineering design and associated services. Their offices are in Torrance, California. Mr. Green's credentials include Director of Building and safety for the City of El Segundo, California, Past President of the Structural Engineers Association of California, and Past Chairman of the American Society of Civil Engineers Standards Committee on Seismic Rehabilitation of Buildings.

Nevada State Public Words Division (NSPWD) will assign a Project Manager to oversee the project and ensue the activity is implemented within the scope, schedule, ad budget. With support from the Construction Manager At Risk (CMAR), the Project Manager will deliver the project within a Guaranteed Maximum price based on the construction documents and specification and in compliance with federal procurement requirements. The Project Manager will coordinate with the consultant and construction firm on the project's activities, develop and track budgets and schedules. Coordination will be done using regular meetings with key personnel. In addition, administrative support staff will be tasked to track non-federal cash and in-kind contributions. Administrative staff has experience with basic accounting principles and follow Title 2 of the Code of Federal Regulations, Part 200 in the management of federal funds. NSPWD's Project Manager will ensure all appropriate documentation is completed and maintained throughout the performance period.

Three examples of NSPWS's success in implementation and management of federally funded projects include:

1. Northern Nevada Veterans Home – This project constructed a 102,000 square foot 96-bed Veterans nursing facility in Sparks, Nevada. Using the Federal "Community Living Center" design guidelines, the campus layout seeks to create a residential atmosphere. There is twelve 8-bed clustered residential units configured into three wings of 32-bed communities. The project also includes facilities for administration offices, receiving/storage, nursing offices and other support operations to serve the veterans. The facility is located on the grounds of the Northern Nevada



## Hobart Creek Reservoir Dam (HCRD) Seismic Retrofit

### SCOPE OF WORK

Adult Mental Health Services campus on Galletti Way in Sparks. This \$87.9 million project had \$55.9 million of state funding and \$32.0 million of federal funding.

2. National Guard Readiness Center (North Las Vegas) – This project constructed a 78,000 square foot readiness center in North Las Vegas, Nevada. This project provides the administration, storage, classrooms, locker rooms, break area, restroom/shower, roads, sidewalks, curb and gutters, storm drainage, parking areas to include 270 privately owned vehicles and site improvements to establish and maintain the readiness posture of the assigned units. Anti-terrorism measures were included in accordance with Department of Defense (DOD) minimum standards. It provides the necessary facilities to achieve proficiency in required training tasks for the 272 soldiers of the 17<sup>th</sup> sustainment brigade (WPDNAA) and the 43 soldiers of the EOD company of the Nevada Army National Guard (NANG). This facility is located on 40 acres of state land located just west of the I-15 Freeway near Speedway Boulevard. This \$41.1 million project had \$6.9 million of state funding and \$34.2 million of federal funding.
3. Cemetery Expansion (Southern Nevada Veterans Memorial Cemetery) – This project constructed eight additional columbarium walls totaling 4,992 cremation niches and 3 acres of turf at the Southern Nevada Memorial Cemetery in Boulder City Nevada. This \$8.4 million project had \$0.8 million of state funding and \$7.6 million of federal funding.

## 12. Residual Risk

The rehabilitation will reduce the risk of catastrophic failure of the dam due to:

1. Earthquake activity of a moderate magnitude has the potential to create liquefaction resulting in the catastrophic failure of the dam. Currently the seismic risk to the HCRD is detailed in the Geotechnical Report, attachment 4.3. The project site is within the Sierra Nevada Great Basin Seismic Belt, and in an area at risk of the greatest severity of shaking, as shown in pages 33 and 35 of the Geotechnical Report (attachment 4.3). The same report concludes that the current earthen dam materials will liquefy when subjected to a peak ground acceleration (0.2918g) represented by a seismic event of magnitude 6.48 or greater with a 25% probability of occurrence and a return interval of 175 years and
  - 1.1. *Risk Reduction*: Rehabilitation will result in a reduction to the risk of liquefaction to a peak ground acceleration of 0.6629g, represented by 6.61 seismic event with a 5% probability of occurrence and a return interval of 975 years.
  - 1.2. *Residual Risk*: Seismic events of magnitude higher than 6.61 have the potential of affecting the compacted soil of the rehabilitated reservoir dam. The residual risk correlates directly to the magnitude of the seismic event above the 6.61 magnitude.
2. Severe weather events such as:
  - 2.1. Extreme snow fall impeding the flow of water by blocking the spillway.
    - 2.1.1. *Risk Reduction*: The rehabilitation of the dam will compact the soils and modify the existing outlet pipes. This will avoid water moving through the poorly compacted soils around the pipes causing it to fail. Also, the new spillway will have a hood protecting the immediate area of the spillway preventing its blockage by snow, falling debris (trees, avalanche, rockslide, landslide) characteristic to the area. Additionally, the new automated

## Hobart Creek Reservoir Dam (HCRD) Seismic Retrofit

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system, along with the weather station and camera will provide early warning about imminent danger and weather conditions at the site. This early warning will make a difference in the actions taken, such as controlling the outflow, to reduce the catastrophic failure.

2.1.2. *Residual Risk*: Regardless of the hood protecting the immediate spillway, dangerous severe weather events with snow and ice, such as that of 1911.

2.2. Extreme Precipitation: This type of event, such as an atmospheric river of “bomb cyclone” historically bring rain to the valleys and snow at higher elevations. Such an event will increase the hydraulic pressure to the walls of the dam raising the possibility of catastrophic failure through seepage.

2.2.1. *Risk Reduction*: These precipitation events will not overtop the dam analysis performed in 2001 By Nimous Engineering of the 1000 yr. precipitation event (see Appendix B of the Hobart Emergency Action Plan (EAP), attachment 13.7) but present a scenario similar to the 1955 failure. That is weakening the soils to the extent of causing a catastrophic failure. The dam’s resilience is improved with the compaction of the soils, enhanced inlet structure, and walls.

3. Other hazards listed below are mitigated by the implementation of this project.

#### 3.1. Wildfire Debris

3.1.1. *Risk Reduction*: This hazard presents a high risk in the entire Sierra Nevada area. The rehabilitation strengthens the dam reducing the risk of catastrophic failure due to debris blocking its intake or spillway and benefits the firefighting efforts. It does not reduce the risk of wildfire. Nevada’s Climate Change Initiative projects an increase in wildfire risk in the Sierra Nevada.

3.1.2. *Residual Risk*: Wildfire risk is high in the HCRD area. Rehabilitating the dam does not reduce this threat.

#### 3.1.3. Drought.

3.1.3.1. *Risk Reduction*: Rehabilitation of the HCRD will ensure the continued supply of water to the three communities dependent on the HCRD’s continued operation. Also, the project will support an, albeit small, but important increase in capacity of the dam storage.

3.1.3.2. *Residual Risk*: The projected changes in climate include increased drought conditions. A prolonged drought will continue to impact the availability of water regardless of the storage capacity of this dam.

#### 3.1.4. Erosion.

3.1.4.1. *Risk Reduction*: The reduction in risk of catastrophic failure also reduces the erosion risk downstream related to the large flow.

3.1.4.2. *Residual Risk*. As with the other hazards listed above, the potential for the catastrophic failure of the dam due to any, or all the above extreme conditions, continues to be present and if it occurs, it will cause severe erosion.

## 13. When Will the Rehabilitation Take Place?

The implementation of the project will begin immediately upon receipt of award. Environmental assessments and additional studies needed to produce a complete design, as well as construction work

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## Hobart Creek Reservoir Dam (HCRD) Seismic Retrofit

### SCOPE OF WORK

will take place, weather permitting, mostly during summer and fall. Upon completion of the design, construction work will begin in the summer. In the winter when the site is not accessible, tasks that do not require on-site work will take place. The NSPWD expects the duration of the project tasks to be 20 months from start to finish *without* consideration to weather. The Weather establishes the necessity of 36 months for the performance period to eliminate the possibility of asking for no-cost, time extensions. Details of the schedule for tasks are found in attachment 7.1 Estimated Project Timeline.

#### 14. Maintenance.

Nevada State Public Works Division is responsible for the long-term maintenance of the completed project. It has the necessary technical capabilities, and appropriate staffing levels to carry out the maintenance tasks.

Note that personnel costs for this maintenance are part of the NSPWD's budget under the Marlette Water System section of the Division. Current maintenance tasks are not expected to have a far-reaching change with the rehabilitation and include:

- a. Access Road Maintenance and Repair.
- b. Brush and Tree Removal
- c. Site inspection of the dam and its components
  - c.1. Personnel travel throughout the entire Marlette Water System for inspection and maintenance purposes two to three times a week during summer. In winter, they rely on automated controls and when hazard events happen, a helicopter will be used to inspect the site.
- d. Vegetation control
  - d.1. Herbicide
- e. Rodent Control
- f. SCADA Control system monitoring
  - f.1. Supervisory control and data acquisition (SCADA) is a system of software and hardware elements that allows industrial organizations to: Control industrial processes locally or at remote locations. Monitor, gather, and process real-time data
- g. Helicopter transportation (El Aero) when roads are not passable
- h. Maintenance of the water mixing system to improve water quality (Solar Bee).
  - h.1. SolarBee® mixers take advantage of the way water forms thin horizontal layers in all reservoirs. Utilizing solar power and highly efficient motor / mixing drive systems, the SolarBee® pulls in water at the desired depth from all corners of the basin providing effective mixing to a predetermined depth. SolarBees are designed to operate 24 hours per day utilizing digital logic for power management, auto reverse, and anti-jam features. They are a scalable solution for most applications where water quality improvement is desired.

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## Hobart Creek Reservoir Dam (HCRD) Seismic Retrofit

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- i. NSPWD estimates the current costs for the above maintenance tasks at \$15,100 (attachment 10.7). As tasks remain the same, except for the seismic monitoring equipment, camera, and weather station, no remarkable increase (less than \$2,000) in costs is expected. The added costs are for replacement parts and trained technician annual inspections for these items. The budget narrative, attachment 8.1, provides specifics of the added costs. The source of funding for the added costs will be state funding. SNPWD will add the costs to the Marlette Water System's budget accordingly.

HAZARD MITIGATION GRANT PROGRAM (HMGP)

# HAZARD MITIGATION GRANT PROGRAM PROJECT SUBAPPLICATION

NOTE: Please click within the greyed section to begin typing in each section of the application.

DISASTER NUMBER:  
JURISDICTION NAME:  
PROJECT TITLE:  
PROJECT NUMBER:

DR-4523-NV
State of Nevada, Public Works Division
Hobart Creek Reservoir Dam Seismic Retrofit

PROJECT NUMBER IS THE CONTROL NUMBER RECEIVED AT TIME OF SUCCESSFUL NOI SUBMITTAL



Subapplications are due postmarked to NV DEM by:

DR-4523-NV: ASAP  
Deadline: July 5, 2022

# HAZARD MITIGATION GRANT PROGRAM (HMGP)

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## HAZARD MITIGATION GRANT PROGRAM (HMGP)

### INTRODUCTION

As a result of the declaration of a major federal disaster or aggregate Fire Management Assistance declarations, the State of Nevada is eligible for HMGP funding. The State has established priorities to accept project subapplications from subapplicants statewide, state agencies, tribal governments, local governments, and Private Non-Profits.

Hazard mitigation activities are aimed at reducing or eliminating future damages. Activities include cost effective hazard mitigation projects and hazard mitigation plans approvable by the Federal Emergency Management Agency (FEMA).

Nevada's Enhanced State Hazard Mitigation Plan (ESHMP) accreditation resulted in additional dollars available for local agencies' hazard mitigation plan and project funding for Hazard Mitigation Grant Program (HMGP). In order to maintain ESHMP status, further information is requested by FEMA. This information is requested as a means of assessing the pro-activity of your community or agency.

### *PUBLIC ASSISTANCE*

If your project is aimed at repairing a damaged facility resulting from a federally declared disaster, contact the Public Assistance (PA) Program at [disaster-recovery@dps.state.nv.us](mailto:disaster-recovery@dps.state.nv.us). HMGP does not fund repairs for damages that result after a disaster.

### *TIME EXTENSIONS*

Time extensions may be requested, and will be approved or denied on a case-by-case basis. To request additional time to submit a subapplication, send an email to the [mitigation@dps.state.nv.us](mailto:mitigation@dps.state.nv.us) mailbox. The subject line must include: "Subapplication Time Extension Request (include Disaster Number and Project Control Number)". The body of the message must include justification and specific details supporting why more time is needed and how much additional time is requested.

### *QUESTIONS*

Submit all HMGP subapplication questions to the following mailbox: [jwoodward@dps.state.nv.us](mailto:jwoodward@dps.state.nv.us)



## HAZARD MITIGATION GRANT PROGRAM (HMGP)

### REGULATIONS

Federal funding is provided under the authority of the [Robert T. Stafford Emergency Assistance and Disaster Relief Act \(Stafford Act\)](#) through FEMA and the Nevada Division of Emergency Management (NV DEM). NV DEM is responsible for identifying program priorities, reviewing subapplications and forwarding recommendations for funding to FEMA. FEMA has final approval for activity eligibility and funding.

The federal regulations governing HMGP are found in Title 44 of the Code of Federal Regulations (44CFR), Part 201 (Planning) and Part 206 (Projects) and in Title 2 of the Code of Federal Regulations (2CFR), Part 200 (Uniform Administrative Requirements).

The FEMA regulations that establish the agency-specific process for implementing NEPA are set forth in 44 CFR Part 10. FEMA will lead the NEPA clearance process.

### *FEMA GUIDANCE*

FEMA requires that all projects adhere to the [Hazard Mitigation Assistance Unified Guidance 2015](#).

## HAZARD MITIGATION GRANT PROGRAM (HMGP)

### ELIGIBILITY CHECKLIST

Before completing the subapplication, review the following HMGP eligibility checklist to ensure project meets the requirements for HMGP funding.

- Construction/Ground Breaking: No construction or ground breaking activities are allowed prior to FEMA approval. HMGP does not fund projects that are in progress or projects that have already been completed.
- Scope of Work: The project scope of work (SOW) must be consistent with the SOW provided in the approved Notice of Interest (NOI).
- Benefit Cost Analysis: FEMA Benefit Cost Analysis (BCA) Toolkit Version 6.0 must be used to conduct the BCA. FEMA will only consider subapplications that use a FEMA-approved BCA methodology. Documentation to support all BCA calculations must be included in subapplication. Projects with a benefit cost ratio (BCR) of less than 1.0 will not be considered. BCA will be verified by FEMA and NV DEM upon subapplication submittal. 5% Initiative Projects do not need a BCA. Planning grants do not need a BCA.
- Subapplicant Eligibility: Subapplicant must be an eligible State Agency, Local Government (City, County, Special Districts), Federally Recognized Tribe or Private Nonprofit (PNP) Organization. PNP is defined as private nonprofit educational, utility, emergency, medical, or custodial care facility, facilities providing essential governmental services to the general public and such facilities on Indian reservations (see 44 CFR Sections 206.221(e) and 206.434(a)(2)).
- LHMP/MJHMP: Subapplicant must have a FEMA approved and adopted Local or Multi Jurisdictional Hazard Mitigation Plan (LHMP or MJHMP) to be eligible for HMGP funding. If a jurisdiction has its own governing body, jurisdiction must be covered under its own plan. LHMP's/MJHMP's expire five years after FEMA approval. Failure to update plan before expiration date may cause project deobligation.
- Cost Share: Local funding match of 25% of the total project cost is required by the subapplicant. HMGP matching funds must be from a non-federal source. State does not contribute to local funding match.
- Period of Performance: Projects must be completed (including close-out) within the 36-month Period of Performance (POP). POP begins upon FEMA approval of the subapplication.

## HAZARD MITIGATION GRANT PROGRAM (HMGP)

### ELIGIBILITY CHECKLIST (continued)

- Complete Subapplication: Failure to include all required documentation will delay the processing of your subapplication and may result in denial of project. The SOW, cost estimate, cost estimate narrative, work schedule and BCA must accurately mirror each other to be considered for funding. The budget narrative must include a detailed description of every cost estimate line-item, including the methodology used to estimate each cost.
- Regulations: Subapplications that are inconsistent with state and federal HMGP regulations, or do not meet eligibility criteria will not be considered.
- Duplication of Programs: HMGP funding cannot be used as a substitute or replacement to fund activities or programs that are available under other federal authorities, known as Duplication of Programs (DOP).
- Time Extensions: Unless a time extension has been approved before the deadline, subapplications must be postmarked by the applicable deadline to be considered for funding.



SUBAPPLICANT MUST BE ABLE TO CHECK EVERY BOX TO QUALIFY FOR HMGP FUNDING.

## HAZARD MITIGATION GRANT PROGRAM (HMGP)

### SUBAPPLICATION FORMAT INSTRUCTIONS

NV DEM requires the following format to be used for all HMGP subapplications.

COMPLETE SUBAPPLICATION PACKAGE CONSISTS OF THE FOLLOWING:

- Electronic Version of the completed application
  - Table of Contents
  - All electronic attachments must be clearly titled
  
- Send electronic version to NV DEM either by Thumb Drive or by DropBox or Microsoft Word 365 Zip function.
  - Attachments must be in one of the following formats: Microsoft Word Version 2007 (or newer), Microsoft Excel or Adobe PDF
  - Benefit Cost Analysis (BCA) 6.0 must be included
  - All electronic attachments must be clearly titled

***ORGANIZATION OF THE BINDER SECTIONS MUST BE TABBED IN THE FOLLOWING FORMAT:***

0. Table of Contents
1. Subapplication
2. Scope of Work
3. Designs
4. Studies
5. Maps
6. Photos
7. Schedule (Additional documentation work schedule components, Gantt chart, etc.)
8. Budget ([HMGP Cost Estimate Spreadsheet](#) and cost estimate narrative)
9. Match ([Local Match Commitment Letter Template](#))
10. BCA Report ([BCA Version 6.0](#) report and BCA supporting documentation)
11. Maintenance ([Project Maintenance Letter Template](#))
12. Environmental ([FEMA's Site Information, Environmental Review and Checklist](#) and all other environmental documentation)
13. Supporting Docs (Any extra supporting documentation)

***MAIL OR DELIVER COMPLETED SUBAPPLICATIONS TO:***

Nevada Division of Emergency Management  
Attention: Hazard Mitigation  
2478 Fairview Dr.  
Carson City, NV 89701



## HAZARD MITIGATION GRANT PROGRAM (HMGP)

### LOCAL HAZARD MITIGATION PLAN INFORMATION

#### 9. LOCAL HAZARD MITIGATION PLAN (LHMP) REQUIREMENT:

- i** A FEMA approved and locally adopted LHMP is required to receive federal funding for all project subapplication activities. Subapplicants for HMGP funding must have a FEMA-approved Mitigation Plan in place at the time of sub-award. Subapplication will be reviewed to ensure that the proposed activity is in conformance with subapplicant’s plan.

For State agencies, please use the currently approved Enhanced State Hazard Mitigation Plan.

**A.** NAME/TITLE OF YOUR LHMP:

[Nevada Enhanced State Hazard Mitigation Plan 2018](#)

**B.** LOCAL SINGLE JURISDICTIONAL MULTHAZARD MITIGATION PLAN:

DATE SUBMITTED TO NV DEM:	
DATE APPROVED BY FEMA:	
DATE ADOPTED BY LOCAL AGENCY:	

**OR**

LOCAL **MULTI** JURISDICTIONAL MULTHAZARD MITIGATION PLAN:

DATE SUBMITTED TO NV DEM:	
DATE APPROVED BY FEMA:	
DATE ADOPTED BY LOCAL AGENCY:	
LEAD AGENCY:	

**C.** IF YOUR PROJECT IS REFERENCED IN YOUR LHMP, INDICATE WHERE THE PROPOSED PROJECT CAN BE FOUND; USE N/A FOR NOT APPLICABLE BOXES:

CHAPTER	PART	SECTION	PAGE
4	Mitigation Strategy	4	4-8, and 4-11



**DO NOT INCLUDE A COPY OF YOUR PLAN WITH SUBAPPLICATION.**

**D.** PROVIDE A SHORT NARRATIVE DETAILING HOW YOUR PROJECT ALIGNS WITH THE RISK AND HAZARD ASSESSMENTS, STRATEGIES, GOALS AND/OR OBJECTIVES OF YOUR PLAN:

*The project aligns with the State of Nevada Enhanced Hazard Mitigation Plan (Plan) in the risk and hazard assessments for earthquake and flooding due, dam failure. The vulnerability assessment links the earthquake and flooding due to dam failure hazards to the project. Section Four identifies goals and action items for mitigation of earthquake and flooding due to dam failure risks to infrastructure. Please see attachment 13.2 Alignment w NV Enhanced HMP for more details about the alignment of the project with the current State and Washoe County Hazard Mitigation Plans.*

## HAZARD MITIGATION GRANT PROGRAM (HMGP)

### COMMUNITY INFORMATION

#### 10. COMMUNITY PARTICIPATION:

**A. CHECK BOX(ES) IF YOUR COMMUNITY PARTICIPATES IN ANY OF THE FACTORS BELOW:**

Select a column appropriate to your type of project. Acronyms include: Community Wildfire Protection Plan (CWPP), Community Rating System (CRS) Plan and Unreinforced Masonry (URM) Participation.

FIRE	FLOOD	EARTHQUAKE
<input checked="" type="checkbox"/> CWPP, FIRE WIRE, FIRE SAFE <input type="checkbox"/> CURRENT CEQA ACTIVITY <input checked="" type="checkbox"/> DEFENSIBLE SPACE	<input type="checkbox"/> CRS PLAN <input type="checkbox"/> CURRENT CEQA ACTIVITY <input checked="" type="checkbox"/> HYDROLOGY STUDY	<input checked="" type="checkbox"/> SHAKEOUT DRILL PARTICIPATION <input checked="" type="checkbox"/> URM PARTICIPATION <input type="checkbox"/>

**B. PROVIDE A NARRATIVE DESCRIPTION OF ALL OF FACTORS SELECTED FROM LIST ABOVE:**

**Community Wildfire Protection Plans (CWPP)**  
*The State of Nevada Division of Forestry (NDF) is responsible for participation in the development of Community Wildfire Protection Plans statewide. NDF supports local jurisdictions in this effort by providing risk assessment data, technical support, and funding. Although the Nevada State Public Works Division (NSPWD) is not required to prepare a community wildfire protection plan, it follows NDF’s policies and guidelines related to wildfire protection and mitigation activities for all applicable structures and properties.*

**Defensible Space.**  
*NDF is the lead agency for this activity. However, the Nevada Division of Emergency Management (NDEM) also provides support by sub granting funds to local jurisdictions and state agencies for Defensible Space and fire-resistant building modifications. As with the CWPP participation, applicable structures, and properties under the responsibility of NSPWD comply with defensible space conditions.*

**Hydrology Study.**  
*The Nevada Department of Conservation and Natural Resources oversees the State’s Floodplain Management program. The program supports hydrology studies statewide. As with defensible space, NDEM’s Mitigation Program is tasked with helping local jurisdictions with this activity. Both programs collaborate extensively in their efforts to mitigate flood. NSPWD’s adoption of both the 2018 International Building Codes (IBC) and the International Residential Codes (IRC) require hydrology and hydraulics studies for all proposed projects under its authority.*

**Shakeout Drill**  
*The State agencies and the System of Higher Education participate in this important drill every October. SPW holds a Drop, Cover and Hold On exercise for staff annually during the national drill.*

HAZARD MITIGATION GRANT PROGRAM (HMGP)

C. IS YOUR JURISDICTION REQUIRED TO PROVIDE PUBLIC NOTICE OF THIS PROJECT?

Yes  No If yes, provide details:



## HAZARD MITIGATION GRANT PROGRAM (HMGP)

### PROJECT INFORMATION

**11. PROJECT TITLE:**

*Hobart Creek Reservoir Dam Seismic Retrofit*

MUST USE THE SAME PROJECT TITLE ORIGINALLY USED IN THE APPROVED NOTICE OF INTEREST (NOI). IF YOU NEED TO CHANGE YOUR PROJECT TITLE, CONTACT NV DEM at [mitigation@dps.state.nv.us](mailto:mitigation@dps.state.nv.us)

**12. PROJECT LOCATION:**

*Washoe County. Please see attachment 13.3 Project Location for additional information.*

**A. IDENTIFY THE COUNTY/COUNTIES WHERE THE ACTIVITY WILL OCCUR:**

*Washoe County. See attachment 5.1 Washoe County Location Map.*

**B. LATITUDE/LONGITUDE COORDINATES:**

FEMA requires that all projects be geo-coded using latitude and longitude (lat/long) using NAD-83 or WGS-84 datum. The lat/long coordinates must be expressed in degrees including five or more decimal places (e.g., latitude 36.999221, longitude -109.044883).

LATITUDE
39. 19491

LONGITUDE
- 119.86768



**IF THERE ARE MORE THAN ONE SET OF LAT/LONG COORDINATES, PROVIDE ON SEPARATE DOCUMENT AND ADD TO MAP SECTION OF BINDER.**

**C. STRUCTURE COORDINATES: PENDING MAPS**

- For projects that protect buildings or other facilities, provide coordinates for each structure at either the front door of the structure or the intersection of the public road and driveway that is used to access the property.
- For large activity areas, such as detention basins or vegetation management projects, the location must be described by three or more coordinates that identify the boundaries of the project.
- The polygon created by connecting the coordinates must encompass the entire project area.

*See attachment 5.9 Project Location Exhibit.*

**D. STAGING AREA: PENDING MAPS**

Describe the project staging area. This is the area where the project equipment, materials and/or debris will be staged. Include a vicinity map with the proposed staging area(s) in the map section of the binder.

*See attachment 5.9 Project Location Exhibit.*



**AERIAL MAP(S) OF STAGING AREA(S) MUST BE INCLUDED IN SUBAPPLICATION.**

**E. SITE PHOTOS:**

- A minimum of three ground photos per project site are required. Include in photo section of the binder. *Please see attachment 6.1 HCRD Description w Photos.*

**F. MAPPING REQUIREMENTS:PENDING MAPS**

## HAZARD MITIGATION GRANT PROGRAM (HMGP)

Provide the following mapping elements in the map section of the binder:

- If project area has been mapped using GIS software, include the completed Shapefiles in electronic versions of full application.
- Include a vicinity map of the general area showing major roads. Aerial photographs may be used as vicinity maps. *5.5 HCRD Vicinity Map*
- Prominently mark the project location on the vicinity map.
- Provide a detailed project map that clearly identifies the project boundaries.
- Project map must show all lat/long coordinates provided in the project description.
- Vicinity map and the project map must both have a north arrow and scale.

**i SEND ONLY ELECTRONIC VERSIONS OF MAPS.**

**G. PUBLIC ASSISTANCE (PA) PROGRAM FUNDING:**

List any Public Assistance Disaster Survey Reports (DSR) or Project Worksheets (PWs) that were completed at the project location from previous disasters. List all current engagement with PA for this current disaster and include date(s) if known:

*Not applicable*

**H. DEED RESTRICTIONS THAT LIMIT FEDERAL FUNDING:**

Is there a deed restriction or permanent conservation easement on the property at the project site that would prohibit federal disaster funding (e.g., a previously FEMA funded acquisition of a structure on this property)? If yes, describe in detail.

*Not applicable*

**13. PROJECT DESCRIPTION:**

**A. APPLICATION TYPE:**

- Project    5% Activity

*5% activities are defined as mitigation actions that are consistent with your local hazard mitigation plan and meet all HMGP requirements, but may be difficult to conduct a standard BCA to prove cost-effectiveness. Examples: early earthquake warning system, back-up generators for critical facilities, public awareness campaign, mitigation specific community outreach activities.*

**B. PROJECT TYPE:**

Select at least one project type; select as many as needed to accurately describe project.

<input checked="" type="checkbox"/> EARTHQUAKE	<input type="checkbox"/> FIRE	<input checked="" type="checkbox"/> FLOOD	<input checked="" type="checkbox"/> OTHER
<input type="checkbox"/> CODE ENFORCEMENT	<input type="checkbox"/> DEFENSIBLE SPACE	<input type="checkbox"/> ACQUISITION	<input type="checkbox"/> CRITICAL FACILITY GENERATOR(S)
<input type="checkbox"/> NON-STRUCTURAL	<input type="checkbox"/> FIRE RESISTANT BUILDING MATERIALS	<input type="checkbox"/> DRY FLOOD PROOFING	<input checked="" type="checkbox"/> DROUGHT <input type="checkbox"/> TSUNAMI
<input checked="" type="checkbox"/> STRUCTURAL	<input type="checkbox"/> FIRE VEGETATION MANAGEMENT	<input checked="" type="checkbox"/> FLOOD CONTROL	<input type="checkbox"/> WIND
<input type="checkbox"/> NON-STRUCTURAL & STRUCTURAL	<input type="checkbox"/> SOIL STABILIZATION	<input type="checkbox"/> ELEVATION	<input checked="" type="checkbox"/> OTHER: <span style="border: 1px solid black; padding: 2px;">Dam/Levee Break, Severe winter storm, erosion</span>
<input checked="" type="checkbox"/> <a href="#">CLIMATE RESILIENCY MITIGATION ACTION</a> (CRMA): Projects that mitigate risk through restoration of the natural environment			

## HAZARD MITIGATION GRANT PROGRAM (HMGP)

**C. DESCRIBE PROBLEM/HAZARDS/RISKS:**

Describe the problem this project is attempting to solve and the expected outcome. Describe the hazards and risks to life, safety and any improvements to property in the project area for at least the last 25 years. Describe in detail how the project reduces hazard effects and risks.

*From attachment 4.1 Seismic Hazard Analysis we learn that the current poor compaction of soils of the HCRD creates the risk of liquefaction of the soils during an earthquake. The liquefaction will result in flooding due to dam failure, as well as erosion. Also, potential drought conditions will exacerbate the loss of function for a prolonged period for the "water" community lifeline. This historic Marlette Water System (See attachment 4.2 Draft Historical Resources Report) infrastructure services three rural communities. These communities are Virginia City, Gold Hill, and Silver City. More information about each community benefitting from the project is available in attachment 13.4 Description of Communities. Please see attachment 13.5, Hazards Impacting the HCRD for additional details about the risk impacting the dam.*

**D. DESCRIBE RECENT EVENTS THAT INFLUENCED THE SELECTION OF THIS PROJECT:**  
Describe recent events (e.g. changes in the watershed, discovery of a new hazard, zoning requirements, inter-agency agreements, etc.) that influenced the selection of this project.

*The Nevada Dam Safety Program's inspection of the dam in 2018 (attachment 13.6 Nevada Dam Safety Inspection Report) resulted in its designation as a high hazard potential dam. The new designation requires the development of an emergency action plan (EAP) for the dam (attachment 13.7 HCRD Emergency Action Plan). The Seismic Hazard Analysis, attachment 4.3, was conducted as part of the development of the emergency action plan for the Hobart Creek Reservoir Dam (HCRD). Its results influenced the selection of this project.*

**E. SCOPE OF WORK (SOW):** This section contains several documents that present the SOW.

*The Table of Contents, Section 2 provides a list of the documents, the first attachment 2.1 Project Description Overview summarizes the scope of work, and the attachment 2.2 HCRD Scope of Work contains the full, detailed scope of work.*

STATE EXACT SOW DOCUMENT  
TITLE:

2.2 HCRD\_Scope of Work

1. Describe the entire SOW of the project in clear, concise, ample detail.
2. Must provide a thorough description of **all tasks and activities** to be undertaken.
3. Must be written in sequential order from start to finish of the project.
4. Describe any land acquisition activities, and/or right-of-way or access easements that need to be obtained.
5. If structural, discuss how the structure/building/facility will be constructed or retrofitted.
6. Include building or structure dimensions, material types, depth and width of excavations, volume of materials excavated, type of equipment to be used, staging and parking areas, and any phasing of the project.
7. If any tunneling is proposed, describe the method and any temporary trenches or pits.
8. Describe any demolition activities that need to occur prior to construction or retrofitting.



**INSERT THIS DOCUMENT IN THE SOW ORDER OF YOUR ELECTRONIC DOCUMENTS.**

**F. HAS YOUR JURISDICTION PREVIOUSLY RECEIVED HMGP FUNDING?**

Yes  No  Unknown | If yes, provide disaster number(s):

## HAZARD MITIGATION GRANT PROGRAM (HMGP)

**G. HAS YOUR JURISDICTION RECEIVED ANY OTHER FUNDING?**

Describe all other funding received for this project and all other recent projects. Identify the funding source (i.e., Federal, State, Private, etc.).

- *State Legislative allocation to support the non-federal portion for this project is available.*
- *State Legislative allocation to support the non-federal portion for the Marlette Lake Dam Project is available.*
- *Funding for public awareness from Truckee Meadows Water Authority, Carson City, and Storey County is pending approval of this request.*

**H. RELATED PROJECTS:**

Describe any other projects or project components (whether or not funded by FEMA), which may be related to the proposed project, or are in (or near) the proposed project area. FEMA must look at all projects to determine a cumulative effect. FEMA reviews all interrelated projects under NEPA regulations.

- Marlette Lake Dam Resilient Infrastructure Project (Pre-Disaster Mitigation 2018)*  
*Hobart Creek Reservoir Dam Advanced Assistance (Pre-Disaster Mitigation 2018)*  
 Diversion Dam Controls Upgrade (NSPWD Project 21-M15)

**I. HAZARD ANALYSIS TYPE:**

Select the hazard(s) below that this project will protect against. Select as many as needed.

- |   |  |   |  |
|---|--|---|--|
| <input type="checkbox"/> BIOLOGICAL                 | <input checked="" type="checkbox"/> EARTHQUAKE | <input type="checkbox"/> LAND SUBSISTENCE           | <input type="checkbox"/> TERRORIST               |
| <input type="checkbox"/> CHEMICAL                   | <input type="checkbox"/> FIRE                  | <input type="checkbox"/> MUD/LANDSLIDE              | <input type="checkbox"/> TORNADO                 |
| <input type="checkbox"/> CIVIL UNREST               | <input type="checkbox"/> FISHING LOSSES        | <input type="checkbox"/> NUCLEAR                    | <input type="checkbox"/> TOXIC SUBSTANCES        |
| <input type="checkbox"/> COASTAL STORM              | <input checked="" type="checkbox"/> FLOOD      | <input type="checkbox"/> SEVERE ICE STORM           | <input type="checkbox"/> TSUNAMI                 |
| <input type="checkbox"/> CROP LOSSES                | <input type="checkbox"/> FREEZING              | <input checked="" type="checkbox"/> SEVERE STORM(S) | <input type="checkbox"/> WINDSTORM               |
| <input checked="" type="checkbox"/> DAM/LEVEE BREAK | <input type="checkbox"/> HUMAN CAUSE           | <input type="checkbox"/> SNOW                       | <input type="checkbox"/> OTHER (describe below): |
| <input checked="" type="checkbox"/> DROUGHT         | <input type="checkbox"/> HURRICANE             | <input type="checkbox"/> SPECIAL EVENTS             | Erosion  |

**J. DESIGN PLANS:**

If your project requires design plans, plans should be prepared to supplement the SOW. If the project involves ground disturbance, (e.g. enlarging ditches or culverts, diversion ditches, detention basins, storm water improvements, etc.) include the following: *Please see attachment 3.1 Preliminary Site Plans. Note that improvements may be necessary to the access road for safety and appropriate transportation of materials and manpower to the site. A map of the existing access road is found in the file called 5.2 Existing Access Road under Section 5, Maps. Section 5 includes a topographic map (attachment 5.3 Existing Conditions Topo Map), land ownership and areas of potential and direct impact map (attachment 5.4 & its GIS data, attachment 5.4.1)*

1. **Scale:** Plans should be drawn to scale (e.g. 1" to 100' or 1" to 200') depicting the entire land parcel, showing buildings, improvements, underground utilities, other physical features, dimensions and cross sections.
2. **Identification:** Indicate agency name, landowner, civil engineer, soil engineer, geologist, map preparer, and date of map preparation. Also, indicate the name of the project.
3. **Legend/Orientation:** Include a legend explaining all lines and symbols. Identify property acreage and indicate direction with a north arrow (pointing to top or right hand side of the plan).

## HAZARD MITIGATION GRANT PROGRAM (HMGP)

4. **Dimensions:** Show property lines and dimensions. Also, show boundary lines of project and their dimensions if only a portion of the property is being utilized for the project.
  5. **Structures:** Identify all existing and proposed buildings and structures including storm drains, driveways, sidewalks and paved areas.
  6. **Utilities:** Indicate names and location of utilities on property (water, sewage, gas, electric, telephone, cable).
  7. **Roads/Easements:** Indicate location, names, and centerline of streets and recorded roads. Identify any utility, drainage or right-of-way easements on the property.
  8. **Drainage:** Show the location, width and direction of flow of all drainage courses on site.
  9. **Grading/Topographic Information:** Show existing surface contours on-site and bordering the property
  10. **Parking:** Show all construction parking and staging areas and provide dimensions.
  11. **Cross Sections:** Provide cross sections of proposed buildings, structures or other improvements, and any trenches, temporary pits or catchment basins.
- If applicable, provide studies and engineering documentation, including any Hydrology and Hydraulics (H&H) data.
- If applicable, provide drawings or blueprints that show the footprint and elevations.



**PLEASE SEND ELECTRONIC VERSIONS OF DESIGN PLANS, DRAWINGS OR BLUEPRINTS.**

### K. PROJECT ALTERNATIVES:

Identify three project alternatives: *Additional details about the three project alternatives listed below are available in attachment 13.8 Project Alternatives.*

**1. ALTERNATIVE #1 – NO ACTION:**

Describe the No Action alternative below. The No Action alternative evaluates the consequences of taking no action and leaving conditions as they currently exist.

*The No Action alternative will not increase resiliency of the HCRD. The risk remains for catastrophic failure of the dam due to natural seismic or severe weather events. This is not an alternative to consider. The consequences result in high-cost damages to the area and the lack of water to the benefitting communities. Please see more information in attachment 13.8 Project alternatives. Specifically, the section called "Summary of Impacts of Catastrophic Dam Failure."*

**2. ALTERNATIVE #2 – PROPOSED ACTION:**

Describe the Proposed Action alternative below. The Proposed Action alternative is the proposed project to solve the problem. Explain why the proposed action is the preferred alternative. Identify how the preferred alternative will solve the problem, why the preferred alternative is the best solution for the community, why and how the alternative is environmentally preferred and why the project is the economically preferred alternative.

*The chosen alternative to rehabilitate the dam by removing the current embankment and replace it with better cohesive soils, compacted to current standards (95% compaction minimally), will result in a cost-effective, long-term risk reduction, and preserve the safety of people, structures, as well as the water and transportation community lifelines impacted should the HCRD fail.*

**3. ALTERNATIVE #3 – SECOND ACTION ALTERNATIVE:**

Describe the Second Action alternative below. The Second Action alternative described must also solve the described problem. State why this alternative wasn't chosen. It must be a viable project that could be substituted in the event the proposed action is not chosen.

## HAZARD MITIGATION GRANT PROGRAM (HMGP)

*NSPWD and the engineering consultant considered two additional alternatives, listed below, after reviewing the Geotechnical Report (attachment 4.3).*

*3.1. Pressure grouting of the dam embankment. The objective of this procedure is to densify the embankment soil by injecting it with grout. This alternative proved to be ineffective as the existing soil material does not have enough stability to allow the grout to produce the densification needed.*

*3.2. Deep Dynamic Compaction: The objective of this alternative is to compact the existing embankment material using heavy equipment. The existence of large rock in the embankment made this activity not viable.*

## HAZARD MITIGATION GRANT PROGRAM (HMGP)

### WORK SCHEDULE INFORMATION

#### 14. PROJECT WORK SCHEDULE:

*Please see attachment 7.3 HCRD Schedule Narrative for more information about the tasks and their related timeframe. Attachment 7.2 HCRD Gantt Chart provides additional details regarding tasks and their schedule.*

The intent of the work schedule is to provide a realistic appraisal of the time and components required to complete the project.

- Describe each of the major work elements and milestones in the description section below.
- Project subapplication examples are: construction, architectural, design, engineering, inspection, testing, permits, project management, mobilization and de-mobilization.
- State the total timeframe anticipated for each of the work elements.
- State the total timeframe anticipated to complete the project.
- Work schedule must mirror SOW, budget and BCA. OPTIONAL: Provide the work schedule in GANTT chart form as supplemental documentation in the work schedule section of the binder Include this information as an example.

WORK SCHEDULE EXAMPLE		
#	DESCRIPTION	TIMEFRAME
1.	Kick-off, 90% design meetings	3 months
2.	Final contract drawing development	5 months
3.	Open bids and award contract	4 months
4.	Construction – Mobilization	5 months
5.	Construction – Demolition	4 months
6.	Construction – Concrete and conduit work	2 months
7.	Construction – Trenching	2 weeks
8.	Construction – Utility relocation	4 months
9.	Construction – Electrical Installation	1 month
10.	Construction – Site Restoration	1 week
11.	Construction – Complete punch list	2 months
12.	Construction – Demobilization	1 week
13.	Project Close-out and record drawings	2 months
14.	Grant Close out	3 months
<b>TOTAL MONTHS:</b>		<b>36 months</b>



**TOTAL PROJECT DURATION (INCLUDING CLOSE-OUT) MUST NOT EXCEED A 36 MONTH PERIOD OF PERFORMANCE (POP).**

#	DESCRIPTION	TIMEFRAME (Months)
1.	Final Design Request for Proposal (RFP) and selection of Engineering Firm	3
2.	Winter weather prevents access to site causing possible delays. No activity planned	4
3.	Final Design (Go/NoGo)	3
4.	Environmental Studies (Go/NoGo)	3
5.	Federal, state, and local permitting process	Ongoing
6.	Construction Company Bid & Selection	2
7.	Winter weather prevents access to site causing possible delays. No activity planned	4
8.	Start Project Construction	8
9.	Preparation of record drawings & letter of Substantial Completion	2
10.	Winter weather prevents access to site causing possible delays. No activity planned	2
11.	Project Inspection	1
12.	<b>STANDARD VALUE (DO NOT CHANGE)</b> Grant Close-out	3 months
<b>TOTAL MONTHS:</b>		<b>36</b>

If more lines are needed than provided, indicate the title of document in box 1 and attach a separate work schedule in the schedule section of binder.



## HAZARD MITIGATION GRANT PROGRAM (HMGP)

### COST ESTIMATE INFORMATION

#### 15. HMGP COST ESTIMATE SPREADSHEET:

##### A. COST ESTIMATE INSTRUCTIONS:

Using the [HMGP Cost Estimate Spreadsheet](#), provide a detailed cost estimate breakdown.

- Cost estimate describes the anticipated costs associated with the SOW for the proposed mitigation activity. Cost estimates must include detailed estimates of cost item categories.
- Only include costs that are directly related to performing the mitigation activity. If additional work, such as remodeling, additions, or improvements are being done concurrently with the mitigation work, do not include these costs in the submitted budget.
- Documentation that supports the budget must be attached to the subapplication in the budget section of the binder.
- Total costs must be consistent with the requested federal share plus the matching funds and must be consistent with the project cost in the Benefit Cost Analysis (BCA), SOW and work schedule.

HMGP COST ESTIMATE SPREADSHEET EXAMPLE					
#	ITEM NAME	Unit Qty	UNIT	UNIT COST	COST EST TOTAL
1.	Pre-Award Costs: Develop BCA	4	HR	\$150	\$600
2.	Temp. Inlet Filter Rolls	4	EA	\$250	\$1000
3.	Temp. Fiber Roll	1850	LF	\$3	\$5550
4.	Hydraulic Mulch	1000	SQYD	\$2	\$2000
5.	Plane Asphalt Concrete Pavement	650	SQYD	\$22	\$14300
6.	Street Sweeping for 30 days	30	EA	\$350	\$10500
7.	Roadway Excavation	70	CY	\$40	\$2800
8.	Aggregate Base, Class 2	210	CY	\$75	\$15750
9.	Remove Concrete Pavement	650	SQYD	\$340	\$10540
10.	Asphalt Concrete, Type B	180	TON	\$150	\$27000
11.	Asphalt Concrete, Leveling	10	TON	\$300	\$3000
12.	Asphalt Concrete Dike, Type A	235	LF	\$15	\$3525
13.	Asphalt Concrete Dike, Type F	125	LF	\$8	\$120
14.	Place Asphalt Concrete	15	SQFT	\$8	\$120
15.	18" Corrugated Steel Pipe Riser	5	LF	\$125	\$625
16.	24" Reinforced Concrete Pipe	275	LF	\$170	\$46750
17.	84" Reinforced Concrete Pipe Install	572	LF	\$400	\$228800
18.	Precast Triple Concrete Box Culvert	44	LF	\$1500	\$66000
19.	Curb Inlet - Type B-1 (L=9')	1	EA	\$6000	\$6000
20.	Curb Inlet - Type B-1 (L=13')	1	EA	\$6300	\$6300
21.	Curb Inlet - Type B-1 (L=15')	1	EA	\$6800	\$6800
22.	Storm Drain Cleanout - Type A-8	3	EA	\$7500	\$22500
23.	8" PVC Sewer	89	LF	\$100	\$8900
24.	Cellular Block (Precast)	4100	SQFT	\$20	\$82000
25.	Project Identification Sign	2	EA	\$1000	\$2000
<b>Total Project Cost Estimate:</b>					<b>\$573480</b>

##### B. INELIGIBLE COSTS:

The following are ineligible line items:

- Lump Sums
- "Other" Costs
- Cents (must use whole dollar amounts, round unit prices up to whole dollars)
- Contingency Costs
- Indirect Charges
- Miscellaneous Costs
- Overhead Costs

##### C. PRE-AWARD COSTS:

Eligible pre-award costs are costs incurred after the disaster date of declaration, but prior to grant award. Pre-award costs directly related to developing the application may be funded.

- Developing a BCA
- Submission of subapplication
- Workshops or meetings related to development
- Preparing design specifications
- Gathering environmental and historic data



**Subapplicants who are not awarded funds will not receive reimbursement for pre-award costs.**

##### D. COST ESTIMATE NARRATIVE:

FEMA requires a cost estimate narrative that explains all projected expenditures in detail. The cost estimate narrative is intended to mirror the cost estimate spreadsheet and should include a full detailed narrative to support the cost estimates listed in the HMGP Project Cost Estimate Spreadsheet. If your cost estimate includes City, County, or State employees' time (your agency), include personnel titles and salary/hourly wages plus benefits for a total hourly cost. Detailed timesheets must be retained.

Title the document "Cost Estimate Narrative" and include in the budget section of the binder.



## HAZARD MITIGATION GRANT PROGRAM (HMGP)

**16. FEDERAL/NON-FEDERAL SHARE INFORMATION:**

**A. FUNDING RESTRICTIONS:**

HMGP funding is restricted to a maximum of \$5 million federal share for each project subapplication. FEMA will contribute up to 75 percent of the total project cost. A minimum of 25 percent of the total eligible costs must be provided from a non-federal source. State does not contribute to local cost share.

**For example:** for a \$6,250,000 total project cost, the federal requested share (75 percent) would be \$5,000,000. The non-federal match share (25 percent) provided would be \$1,250,000.

A jurisdiction may contribute an amount greater than the 25 percent non-federal share.

**For example:** for a \$10,000,000 total project cost, the federal requested share cannot exceed \$5,000,000. Therefore, the non-federal match provided must be \$5,000,000, which exceeds 25 percent of the total cost share. The sum of the non-federal and federal shares must equal the total project cost.

**B. TOTAL PROJECT COST ESTIMATE:**

<i>13,940,279</i>
-------------------

Enter total cost formulated on [HMGP Cost Estimate Spreadsheet](#)

ENTER \$ IN BOX ABOVE



**VERIFY ALL AMOUNTS ENTERED ARE ACCURATE.**

**INCORRECT AMOUNTS WILL DELAY PROCESSING OF YOUR SUBAPPLICATION.**

<b>FEDERAL SHARE (75% MAXIMUM)</b>	REQUESTED AMOUNT:	<i>10,021,355</i>
		ENTER \$ IN BOX ABOVE
<b>NON-FEDERAL SHARE (25% MINIMUM)</b>	PERCENTAGE AMOUNT:	<i>71.89</i>
		ENTER % IN BOX ABOVE
<b>FEDERAL SHARE (75% MAXIMUM)</b>	REQUESTED AMOUNT:	<i>3,918,924</i>
		ENTER \$ IN BOX ABOVE
<b>NON-FEDERAL SHARE (25% MINIMUM)</b>	PERCENTAGE AMOUNT:	<i>28.11</i>
		ENTER % IN BOX ABOVE

**C. NON-FEDERAL MATCH SOURCE: MATCH COMMITMENT LETTER:**

*The match commitment letters from NSPWD, Truckee Meadows Water Authority, Storey County and Carson City are attached in Section 9. Two versions of each match commitment letter are included. The first version with numbering 9.X is the formal letter on the organization’s letterhead and original signature. The second version (9.X.X) uses the required template format without the letterhead and signature. This method was a concerted effort to avoid delays and inconvenience for the organizations committing the funds.*

- Use the [Local Match Commitment Letter Template](#) to complete this section and add completed letter to the match section of the binder.

## HAZARD MITIGATION GRANT PROGRAM (HMGP)

- A signed Match Commitment Letter must be provided on agency letterhead.
- The non-federal source of matching funds must be identified by name and type.
- If “other” is selected for funding type, provide a description.
- Provide the date of availability for all matching funds.
- Provide the date of the Funding Match Commitment Letter.
- The funds must be available at the time of submission unless prior approval has been received from NV DEM.
- If there is more than one non-federal funding source, provide the same information for each source on an attached document.
- Match funds must be in support of cost items listed in the cost estimate spreadsheet.
- Requirements for donated contributions can be found in 2 CFR 200.306.

## HAZARD MITIGATION GRANT PROGRAM (HMGP)

### BENEFIT/COST EFFECTIVENESS INFORMATION

#### 17. BENEFIT/COST EFFECTIVENESS INFORMATION

**A. BCA INSTRUCTIONS:**

FEMA will only consider subapplications from subapplicants that use a FEMA-approved methodology to conduct the Benefit Cost Analysis (BCA). BCA must be legible, complete and well-documented.

- Project BCAs must demonstrate cost-effectiveness through a Benefit Cost Ratio (BCR) of 1.0 or greater.
- Projects with a BCR of less than 1.0 will not be considered for funding.
- Total project cost must be used in the BCA.
- Maintenance of a completed HMGP project is not an eligible reimbursement activity, but must be included in the BCA.

BCA Version 6.0 is the only software that is allowed for conducting a BCA. Some project types may qualify for pre-calculated benefits. Additional information on the BCA Toolkit is available at: <https://www.fema.gov/benefit-cost-analysis>.

**i** The FEMA BCA Technical Assistance Helpline is available to provide assistance with FEMA’s BCA software by calling 1-855-540-6744 or via email at [BCHelpLine@FEMA.dhs.gov](mailto:BCHelpLine@FEMA.dhs.gov). The FEMA helpline is only to be utilized for technical assistance questions. The FEMA helpline will not verify the accuracy of your BCA.

**B. BCA INFORMATION:**

Once the BCA is completed, enter information requested below.

- |  |            |
|--|------------|
| <b>1. NET PRESENT VALUE OF PROJECT BENEFITS:</b> | 20,486,614 |
| <b>2. TOTAL PROJECT COST ESTIMATE:</b>           | 14,148,670 |
| <b>3. BENEFIT COST RATIO:</b>                    | 1.45       |

**C. ANALYSIS TYPE:**

- |  |                                   |   |  |
|--|-----------------------------------|---|--|
| <input type="checkbox"/> FLOOD                             | <input type="checkbox"/> WILDFIRE | <input type="checkbox"/> EXEMPT (5% PROJECTS) | <input checked="" type="checkbox"/> EARTHQUAKE |
| <input type="checkbox"/> HURRICANE WIND                    | <input type="checkbox"/> DROUGHT  | <input type="checkbox"/> PRE-CALCULATED       | <input type="checkbox"/> LANDSLIDE             |
| <input type="checkbox"/> DAMAGE FREQUENCY ASSESSMENT (DFA) |                                   |   |  |

**D. ANALYSIS DATE (date BCA was conducted):** 12-08-2020

**E. PROVIDE BCA ELECTRONIC COPIES IN FORMAT DESCRIBED BELOW:**

*Section 10 BCA Report contains 18 files. The files include the BCA Excel spreadsheet and the related supporting documentation.*

- Provide An electronic copy of the report in the BCA section of the binder and all backup documentation for information used in the BCA.

HAZARD MITIGATION GRANT PROGRAM (HMGP)

## HAZARD MITIGATION GRANT PROGRAM (HMGP)

### MAINTENANCE ASSURANCE INFORMATION

#### 18. PROJECT MAINTENANCE INFORMATION:

##### A. MAINTENANCE ASSURANCE LETTER:

*Please note that Section 11 includes attachment 11.1 and 11.2. The first is the required Project Maintenance Letter Template without the NSPWD letterhead. The second attachment is a formal letter using NSPWD letterhead and containing similar information. Attachment 11.3 depicts a sample maintenance schedule for future maintenance tasks.*

- Using the [Project Maintenance Letter Template](#), identify all maintenance activities required to preserve the long-term mitigation effectiveness of the project.
- Examples of maintenance include: inspection of the project, cleaning and grubbing, trash removal, replacement of worn out parts, etc.
  - Attach a maintenance schedule, estimated annual costs, and a signed maintenance commitment letter for the useful life of the project.

HAZARD MITIGATION GRANT PROGRAM (HMGP)

NATIONAL FLOOD INSURANCE PROGRAM (NFIP)

19. NFIP INFORMATION:



CONTACT YOUR COUNTY OR LOCAL FLOODPLAIN ADMINISTRATOR FOR NFIP INFORMATION.

A. NFIP PARTICIPATION:

- 1. Is the jurisdiction where the project is located participating in the NFIP? YES  NO 
  - a. If yes, are they in good standing? YES  NO
  - b. If no, explain:

B. PROJECT LOCATION:

- 1. Is this project located in a floodplain or floodway designated on a FEMA Flood Insurance Rate Map (FIRM)? YES  NO 
  - a. Mark the project location on the FIRM and attach to subapplication in the maps section of the binder. *See attachment 5.6 Hobart FIRMETTE and 5.7 HCRD +Access Road FIRMETTE\_LI*
- 2. Provide the following information for the location of the project:
  - a. FIRM panel number:
  - b. FIRM zone designations:
  - c. NFIP community ID number:

C. LAST COMMUNITY ASSISTANCE VISIT (CAV) DATE:

## HAZARD MITIGATION GRANT PROGRAM (HMGP)



### ENVIRONMENTAL INFORMATION

#### 20. ENVIRONMENTAL INFORMATION:

##### A. FEMA ENVIRONMENTAL CHECKLIST:

- Complete the [FEMA Site Information, Environmental Review, and Checklist](#) and attach to the environmental section of the binder. Provide a detailed response to each question. Attach supporting documentation in compliance with [FEMA's frontloading requirements](#).

HAZARD MITIGATION GRANT PROGRAM (HMGP)

**PRINT THIS PAGE – ORIGINAL SIGNATURE IS REQUIRED**

**PROJECT CONDITIONS**

Indicate by checking each box below that you will adhere to these listed project conditions.

- If during implementation of the project, ground-disturbing activities occur and artifacts or human remains are uncovered, all work will cease and FEMA, NV DEM, and the State Historic Preservation Officer (SHPO) will be notified.
  
- If deviations from the approved scope of work result in design changes, the need for additional ground disturbance, additional removal of vegetation, or will result in any other unanticipated changes to the physical environment, FEMA will be contacted and a re-evaluation under NEPA and other applicable environmental laws will be conducted.
  
- If wetlands or waters of the U.S. are encountered during implementation of the project, not previously identified during project review, all work will cease and FEMA will be notified.
  
- Due to the Federally mandated Environmental and Historic Preservation (EHP) review; no construction will occur for this project prior to FEMA and NV DEM approval.



## HAZARD MITIGATION GRANT PROGRAM (HMGP)

### AUTHORIZATION


The undersigned does hereby submit this subapplication for financial assistance in accordance with the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program (HMGP) and the State Hazard Mitigation Administrative Plan and certifies that the subapplicant (e.g., organization, city, or county) will fulfill all requirements of the program as contained in the program guidelines and that all information contained herein is true and correct to the best of our knowledge.

Subapplicant Authorized Agent

**NAME:** Brian Wacker

**TITLE:** Chief of Planning

**ORGANIZATION:** State Public Works Division

**SIGNATURE:** 

**DATE:** 2/16/22

# Budget Narrative

Hobart Creek Reservoir Dam

HMGP DR-4523-NV

## Total Costs

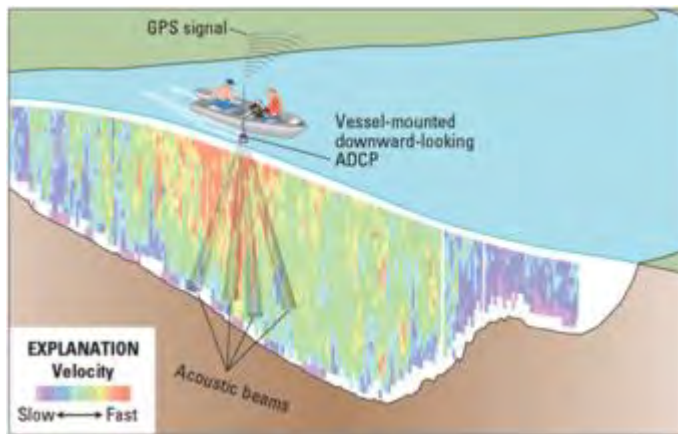
The costs for this proposed project encompass the pre-design environmental studies, existing conditions assessments, engineering design of the proposed improvements, permitting, bidding and contract award, construction oversight and construction materials, use of equipment and personnel necessary to perform the Hobart Creek Reservoir Dam Resiliency Infrastructure Project. The total cost is **\$13,940,279**. The State is providing **\$4,176,083.70** non-federal dollars allocated by the Legislature. Public partners are providing an in-kind match of **\$6,000**. This is 30% of the project cost

The requested federal share amounts to **\$9,758,195.30** which is 70% of the project costs

## A. Existing Conditions Assessment and Engineering Design

### A1. Bathymetric Survey

To determine the site conditions below the water surface for purposes of designing the modifications to the dam and outlet structures, a bathymetric survey of the reservoir is necessary. Additionally, the bathymetric survey will provide information about how much accumulated soils to remove as a part of the retrofit and to return the reservoir to its original capacity.



**FIGURE 1: BATHYMETRIC SURVEY USING ACOUSTIC DOPPLER CURRENT PROFILER (ADCP)**

Bathymetric surveys allow the measurement of the depth of a water body as well as the mapping of its underwater features. Bathymetric surveys have many applications including flood inundation, contour of streams and reservoirs, leakage, scour and stabilization, water-quality studies, dam removal, biological and spill, and storage and fill in reservoirs and ponds.

Bathymetric surveys allow the measurement of the depth of a water body as well as the mapping of its underwater features. Bathymetric surveys have many applications including flood inundation, contour of streams and reservoirs, leakage, scour and stabilization, water-quality studies, dam removal, biological and spill, and storage and fill in reservoirs and ponds.

The engineers estimate the cost of the bathymetric survey at \$20,000. These costs include all personnel, wages and benefits, as well as equipment to prepare the items described above.

Work Description	Unit	Quantity	Unit Cost	Total Cost
A1. Bathymetric Survey	EA	1	\$20,000	\$20,000

# Budget Narrative

Hobart Creek Reservoir Dam

HMGP DR-4523-NV

## A2. Access Road Improvement Design ADD MAP HERE

The access road (Franktown Creek Rd.) is 5.9 miles in length. It starts in the Lakeview residential area north of Carson City and terminates at the Hobart Creek Reservoir. The access road is an unpaved



**FIGURE 2: ACCESS ROAD TO THE PROJECT SITE**



**FIGURE 3: DETAIL OF THE ACCESS ROAD CROSSING THE DISCHARGE CHANNEL**

native surface road. While in good condition, the engineering firm selected will assess it to identify the need for improvements. This assessment ensures the safety of construction traffic transporting materials, equipment, and personnel to and from the site. Engineering design for improvements to the road include culvert rehabilitation, slope stabilization, and structural section improvement design for excessive steep sections. Additionally, the current access road crosses through the discharge channel from the dam outlet. This item includes the design of a new vehicle bridge structure and restoration design of the existing road crossing. These costs include all hourly wages and benefits. See item D4 for access road improvement construction costs.

Work Description	Unit	Quantity	Unit Cost	Total Cost
A2. Access Road Improvement Design				

# Budget Narrative

Hobart Creek Reservoir Dam

HMGP DR-4523-NV

Senior Engineer	HR	125	\$190	\$23,750
Engineer Technician	HR	540	\$130	\$70,200

## A3 Seismic Retrofit Design Plans to Earthen Dam

Engineering costs for this item total \$129,350.

Work Description	Unit	Quantity	UnitCost	TotalCost
A3. Seismic Retrofit Design Plans to Earthen Dam				
Senior Engineer	HR	325	\$190	\$61,750
Engineer Technician	HR	520	\$130	\$67,600

## A4 Spillway Retrofit Design Plans

Figure 4 below is an excerpt from Figure S3.0 found in, attachment 10, Preliminary Site Plan. Costs for the design total \$113,900.

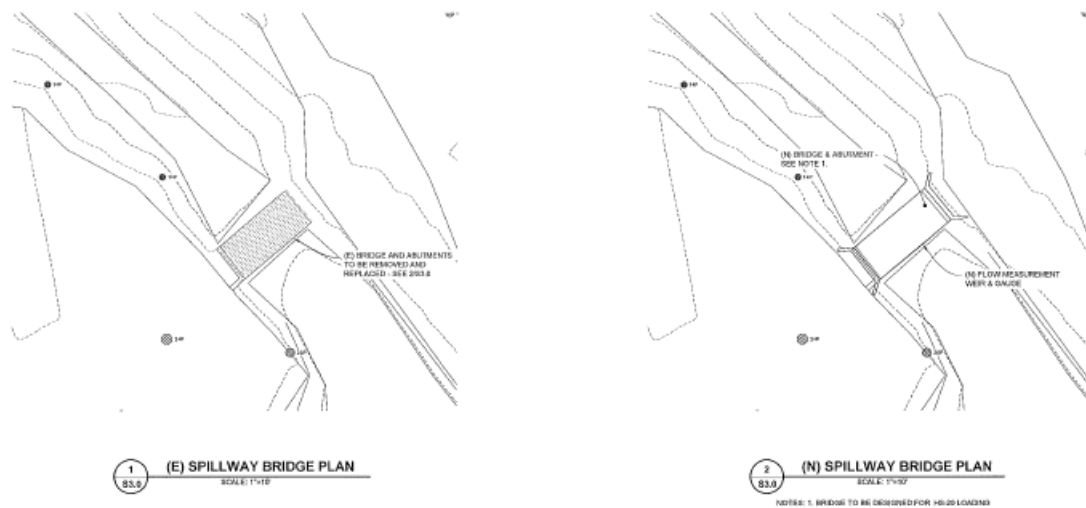


FIGURE 4: SPILLWAY PRELIMINARY PLANS

## Budget Narrative

Hobart Creek Reservoir Dam

HMGP DR-4523-NV

Work Description	Unit	Quantity	UnitCost	TotalCost
A4. Spillway Retrofit Design Plans				
Senior Engineer	HR	230	\$190	\$43,700
Engineer Technician	HR	540	\$130	\$70,200

## A5 Outlet Pipes and Valves Retrofit Design Plans

Figure 5 below shows the current layout of the existing outlet pipe and valves. The design of the outlet pipes and valves total \$91,500.



# Budget Narrative

Hobart Creek Reservoir Dam

HMGP DR-4523-NV



**FIGURE 5: EXISTING LAYOUT OF THE OUTLET PIPE AND MECHANICAL BUILDING WHERE INSTRUMENTS/CONTROLS ARE HOUSED**

Work Description	Unit	Quantity	UnitCost	TotalCost
A5. Outlet Pipes and Valves Retrofit Design Plans				
Senior Engineer	HR	160	\$190	\$30,400
Engineer Technician	HR	470	\$130	\$61,100

## Budget Narrative

Hobart Creek Reservoir Dam

HMGP DR-4523-NV

### A6 Mechanical Building Structural Design Plans

Engineering costs for the design of the mechanical building total \$81,100.

Work Description	Unit	Quantity	UnitCost	TotalCost
A6. Mechanical Building Structural DesignPlans				
Senior Engineer	HR	160	\$190	\$30,400
Engineer Technician	HR	390	\$130	\$50,700

### A7 Instrumentation/Controls Design Plans

These five items include the engineering design of the proposed seismic retrofit for the existing earthen dam. The cost of the filter drains, retrofit of the spillway, retrofit of the outlet pipes and valves, design of the new mechanical building, design of the new instrumentation, and controls for the outlet structure. Included is the preparation of 60%, 90%, and 100% plans, submittal of the plans at each design phase to the appropriate regulatory agencies and State for review and comment, incorporation of the comments received into the next design phase, preparation of construction technical specifications and preparation of construction documents. These costs include all hourly wages and benefits and total \$70,700.

Work Description	Unit	Quantity	UnitCost	TotalCost
A7. Instrumentation/Controls DesignPlans				
Senior Engineer	HR	160	\$190	\$30,400
Engineer Technician	HR	310	\$130	\$40,300

### A8. Third Party Review

This item is for a Third-Party Review by an engineer not associated with the design of the project. The Review will confirm the proposed design for constructability and for value engineering. These costs include all hourly wages and benefits.

Work Description	Unit	Quantity	Unit Cost	Total Cost
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## Budget Narrative

Hobart Creek Reservoir Dam

HMGP DR-4523-NV

A8. Third Party Review				
Senior Engineer	HR	130	\$190	\$24,700

### A9 Project Advertising

This item is for advertising related to project bidding. These costs include the placement of advertisements on local and regional newspapers and online plan databases to attract potential bidders. The total below incorporates all personnel costs and publication fees for drafting and placing advertisements.

Work Description	Unit	Quantity	Unit Cost	Total Cost
A9. Project Advertising	EA	1	\$3,156	\$3,156

### A10. Printing and Plotting

This item is for printing and plotting costs associated with plan and document submittals throughout the design process. These costs include all personnel, materials, and equipment costs.

Work Description	Unit	Quantity	Unit Cost	Total Cost
A10. Printing and Plotting	EA	1	\$1,088	\$1,088

### A11. CMAR Pre-Construction Services

This item is actual services provided by the Construction Manager at Risk (CMAR). CMAR pre-construction services include constructability review and value engineering, cost estimating, scheduling support and bidding services.

Work Description	Unit	Quantity	Unit Cost	Total Cost
A11. CMAR Pre-Construction Services				
Project Manager	HR	625	\$150	\$93,750



# Budget Narrative

Hobart Creek Reservoir Dam

HMGP DR-4523-NV

## A12. Public Outreach

This item is for public outreach efforts completed by Carson City, Storey County, and the Truckee Meadows Water Authority (TMWA). These services include public outreach at scheduled meetings for City Board of Supervisors and County Commission. The development posting of public outreach, such as water department website postings. Creation of flyers for inclusion in billing envelopes when applicable, and posting of these flyers in prominent State, City, and County public locations. The flyers will contain, at minimum, the following data.

1. Funding Source (FEMA BRIC program)
2. Summary of the project activities
3. Timeline
4. Highlight partnerships among the federal, state and local entities with a stake in the successful completion of the project.
5. Describe the increase in resilience for the affected communities to earthquake, severe weather, drought, and for the downstream residents, flood.

These services are in-kind contributions to the overall project. Each community committed to an expenditure of \$2,000 in public outreach for a total of \$6,000.

Work Description	Unit	Quantity	Unit Cost	Total Cost
A12. Public Outreach				
In-kind Contributions – Carson City	EA	1	\$2,000	\$2,000
In-kind Contributions – Storey County	EA	1	\$2,000	\$2,000
In-kind Contributions – TMWA	EA	1	\$2,000	\$2,000

## B Environmental Studies and Permits

This project requires several Federal, state, and local permits. The following paragraphs summarize the anticipated permits and environmental studies required to support the permitting processes.

Based on current information and understanding of the requirements of the FEMA PDM funding the project authorization will most likely require:

- Permitting under Clean Water Act Section 404/401 and the Temporary Working in Waterways Permit (TWWP) from NDEP
- Field surveys and technical reports for United States Forest Service (USFS) Sensitive Species and Management Indicator Species, United States Fish and Wildlife Service (USFWS) listed Threatened and Endangered Species, and State listed wildlife and plant species
- Preparation of a Biological Assessment/Biological Evaluation for aquatic and terrestrial wildlife listed by the USFWS and USFS.
- Preparation of a Biological Assessment/Biological Evaluation for botanical species listed by the USFWS as threatened or endangered and by the USFS as Sensitive and Watch List Species.
- Delineation of aquatic resources eventually required under Section 404/401 the Clean Water Act and the Temporary Working in Waterways Permit from the Nevada Department of Environmental Protection (NDEP)
- Noxious Weed Risk Assessment

The Advanced Assistance grant funding allowed the completion of the formal aquatic resource delineation required for the Section 404/401 permitting under the Clean Water Act and for authorization under a Nationwide Permit from the USACE and a Water Quality Certification from Nevada Division of Environmental Protection (NDEP). NDEP will require a TWWP for construction occurring within state regulated waters. Assuming FEMA approves this project, under a Section 404 Nationwide Permit and does not include preparation of an Individual 404 permit, review of the USFWS Information for Planning and Consultation (IPaC) database identified three federally listed species that have potential to occur within the project area. These include:

- Lahontan Cutthroat Trout (Federally Threatened)
- Sierra Nevada Yellow-legged Frog (Federally Endangered)
- Cui-ui (Federally Endangered)

Because the Cui-ui are endemic to Pyramid Lake and not known to occur within Hobart Creek Reservoir, the survey for this species is unlikely.

Based on the potential presence of suitable habitat for the Sierra Nevada Yellow-Legged Frog (SNYLF) within the project area, it is likely that Visual Encounter Surveys (VES) are necessary. The team will query the Nevada Natural Heritage Program database for known occurrences of SNYLF within proximity of the project

### Hobart Creek Reservoir Dam Resilient Infrastructure Project

area. Standard protocols for amphibian VE surveys require the completion of three (3) surveys during the periods immediately post snowmelt, and prior to September 15th.

As required by Section 7 of the Endangered Species Act, the project will include a survey and prepare a formal aquatic Biological Assessment for both species and any other federally listed species of concern to facilitate consultation with the USFWS.

Pursuant to National Environmental Policy Act (NEPA) and in compliance with the Forest Service Manual 2672.42, NSPWB will perform a formal biological evaluation to address potential impacts to sensitive wildlife species. The project will include a Biological Evaluation for Aquatic and Terrestrial Wildlife Species and a Management Indicator Species Report for review and approval by NDOW and USFWS.

Past projects in the area have required additional species surveys for the CA Spotted Owl, Northern Goshawk, and Bald Eagle. Standard survey protocols for Goshawk and CA Spotted Owls require six (6) surveys for completion over a two (2) year period. However, if removal of trees is not necessary for construction activities, the scheduled timing of construction activities outside of the breeding season will minimize and avoid impacts to these species. The team will need to consult with Nevada Division of Wildlife and U.S. Forest Service (USFS) to determine the need to complete surveys for these species and any other State listed of USFS Sensitive species that the project may potentially impact.

This section integrates costs for other state and local permits needed due to grading activities on the access road, which is within State lands, and for work in the reservoir itself.

The personnel costs for line items under this category reflect fringe benefits.

## B1. Section 404 Permit/Section 10 Nationwide Permit (Army Corps of Engineers)

Cost of processing permit with support from one engineer technician is \$9,100. The responsibility for obtaining this permit falls to the engineering firm selected by NSPWD.

Work Description	Unit	Quantity	UnitCost	TotalCost
B1. Section 404 Permit/Nationwide Section10 Permit				
Engineer Technician	HR	70	\$130	\$9,100

## B2. Endangered Species Act Section 7 Consultation

The selected engineering firm will have responsibility to complete this task. Costs for this consultation is \$3,250.

Work Description	Unit	Quantity	Unit Cost	Total Cost
B2. Endangered Species Act Section 7Consultation				
Engineer Technician	HR	25	\$130	\$3,250

**B3 Section 106 of the National Historic Preservation Act**

Personnel costs from the selected engineering firm services for this study is \$3,250.

Work Description	Unit	Quantity	Unit Cost	Total Cost
B3. Section 106 of the National Historic Preservation Act				
Engineer Technician	HR	25	\$130	\$3,250

**B4. Bureau of Water Pollution Control 401 Water Quality Certification**

The cost to process the plan that meets the 401 water pollution control requirements is \$6,500. As with line items B1-B3 above, this task is the responsibility of the selected engineering firm.

Work Description	Unit	Quantity	Unit Cost	Total Cost
B4. Bureau of Water Pollution Control 401 Water Quality Certification				
Engineer Technician	HR	50	\$130	\$6,500

**B5. Division of Water Resources Application of Dam Plan Approval**

NSPWD with support from the contracted engineering firm will process the dam plan approval. The Nevada Division of Water Resources must approve the final plans for the rehabilitation. Costs for modifications, updates, etc. for this approval process is \$9,000.

Work Description	Unit	Quantity	Unit Cost	Total Cost
B5. Division of Water Resources Application of Dam Plan Approval				
Staff Engineer	HR	60	\$150	\$9,000

**B6. Division of Water Resources Notice of Instructions "Cofferdam"**

NSPWD will assign an engineer to this task. The engineer will ensure the implementation of directions given by the Nevada Division of Water Resources for the construction and maintenance of the cofferdam. The personnel costs for this item total \$9,000.

Work Description	Unit	Quantity	Unit Cost	Total Cost
B6. Division of Water Resources Notice of Instructions "Cofferdam"				

Hobart Creek Reservoir Dam Resilient Infrastructure Project

Work Description	Unit	Quantity	UnitCost	TotalCost
Staff Engineer	HR	60	\$150	\$9,000

### B7. National Pollution Discharge Elimination Systems Storm Water GeneralPermit

The task of obtaining the permit belongs an Engineer Technician, the expected cost for Engineer Technician time and the permit is \$7,500.

Work Description	Unit	Quantity	UnitCost	TotalCost
B7. National Pollution Discharge EliminationSystems Storm Water General Permit				
Engineer Technician	HR	60	\$130	\$7,800

### B8. Temporary Working in Waterways

This task is for obtaining the permit above. The time for the engineer technician assigned to complete this task and the cost of the permit is \$5,200.

Work Description	Unit	Quantity	UnitCost	TotalCost
B8. Temporary Working in Waterways				
Engineer Technician	HR	40	\$130	\$5,200

### B9. Nevada State Parks

An engineer will be assigned to work with the Nevada State Parks to ensure the project has the proper permits and procedures in place to work in the land under the jurisdiction of this state agency. The cost for this work is \$3,750.

Work Description	Unit	Quantity	UnitCost	TotalCost
B9. Nevada State Parks				
Staff Engineer	HR	25	\$150	\$3,750

### B10. State Building Permit

This permit will also have an engineer assigned to ensure the project meets the requirements and has the collaboration necessary. The cost of this task is \$3,750.

Hobart Creek Reservoir Dam Resilient Infrastructure Project

Work Description	Unit	Quantity	UnitCost	TotalCost
B10. State Building Permits				
Staff Engineer	HR	25	\$150	\$3,750

**B11. Nevada Division of State Lands**

The project site is within a State Park, owned by the state. The Nevada Division of State Lands oversees all aspects of ownership and enhancements to state property. One engineer will work with this state agency to ensure the design and implementation of the project meets their requirements.

Work Description	Unit	Quantity	UnitCost	TotalCost
B11. Nevada Division of State Lands				
Staff Engineer	HR	35	\$150	\$5,250

**B12. State Historical Preservation Office Section 106 Review**

A draft historical resources report is complete. This report will support and expedite the Section 106 review required under NEPA. An engineer will work with the State Historic Preservation Office to ensure design and implementation of the project meet their specifications. The cost for this work is Staff Engineer \$5,250.

Work Description	Unit	Quantity	UnitCost	TotalCost
B12. State Historical Preservation Office Section 106 Review				
Staff Engineer	HR	35	\$150	\$5,250

**B13. Washoe County Dust Control Permit**

As with tasks B11 and B12, this task requires an engineer. The experienced engineer will work with Washoe County to plan and design the control of dust at the project site. Cost for this task is \$5,250.

Work Description	Unit	Quantity	UnitCost	TotalCost
B13. Washoe County Dust Control Permit				
Staff Engineer	HR	35	\$150	\$5,250

### C. Project Management, Construction Management, Inspection and Testing

#### C1. Project Manager and Inspection (NSPWD)

Nevada State Public Works Division (NSPWD) has experienced engineers in managing projects of this type and size. The cost is for current staff to manage the implementation of the project in conjunction with the selected engineering firm and construction company. The cost of the project manager’s position at NSPWD is \$130/Hour. This includes fringe benefits. A project similar in complexity was used to derive the number of hours, 2,150, for its implementation from design to approval resulting in a cost of \$279,500.

The cost of the inspection by a qualified NSPWD staff through the life of the rehabilitation work is also based on previous projects similar in complexity. Continuous travel to the construction site to verify construction meets the requirements of the building code(s) increase the hours for this important project. 2,900 hours of inspection tasks at a cost of \$97/Hour result in a cost of \$281,300. Together with the management, this item total is \$560,800.

Work Description	Unit	Quantity	UnitCost	Total Cost
C1. Project Manager and Inspection (StatePublic Works Division)				
SPWD Project Manager	HR	2,150	\$130	\$279,500
SPWD Inspector	HR	2,900	\$97	\$281,300

#### C2. Construction Survey

The engineering firm who completed the preliminary design estimates the need for a team of two surveyors to remain with the project from start to finish. The cost of the team includes personnel and fringe, as well as equipment necessary to perform the surveying tasks. Each surveyor’s hourly rate is \$125. The engineering firm calculated the number of hours using the preliminary design. Total cost for this item is \$119,000.

Work Description	Unit	Quantity	UnitCost	Total Cost
C2. Construction Survey				
2-Man Crew with GPS	HR	476	\$250	\$119,000

#### C3 Construction Management Services

During construction, the Nevada State Public Works Division and selected consultant(s) will provide project construction management services, construction staking and inspection and testing services. The staff involved with these tasks are a Senior Engineer, Engineer Technician, and an additional engineer to provide material testing and inspection. The hourly rate presented includes salary and fringe benefits. The number

# Budget Narrative

## Agenda Item #5g

Hobart Creek Reservoir Dam Resilient Infrastructure Project

(quantity) of hours is based on the extensive experience of the engineering firm who supported NSPWD in the performing the studies and preliminary design completed with the Advanced Assistance funding.

The Senior engineer’s hourly rate is \$190, and the number of hours expected for the completion of the construction management is 1,440. Multiplying the hourly rate \$190 x 1,440 results in \$273,600.

The engineer technician will support the Senior engineer in performing the construction management duties. At \$130/Hour for 1,620 hours, the total cost for this staff member is \$210,600.

The engineer performing the inspection and testing of materials used for the rehabilitation of the dam has a current salary of \$150 per hour. Considering the preliminary design and other information gathered by the studies performed in and around the project site, the number of hours spent by this staff member in ensuring materials meet the standards of the project is 1,640 at a cost of \$246,000.

Note that the design consultant will remain available to respond to requests for information and/or to address design modifications necessary because of changes in site conditions as the project moves forward.

The following table summarizes the tasks involved in the project’s budget line-item C Project and Construction Management, Inspection and Testing of the rehabilitation of the HCRD.

Work Description	Unit	Quantity	UnitCost	Total Cost
C3. Construction Management Services(Design Consultant)				
Senior Engineer	HR	1,440	\$190	\$273,600
Engineer Technician	HR	1,620	\$130	\$210,600
Inspection and Materials Testing	HR	1,640	\$150	\$246,000



### D. CONSTRUCTION COSTS

A planning level cost estimate is complete for the project based upon the conceptual design and recommended rehabilitation process for the dam. The following is a summary of the anticipated costs of construction items and quantities.

#### D1. Mobilization/Demobilization

Assuming only one mobilization and one demobilization is necessary, this item includes all materials, labor and ancillary costs associated with the contractor’s mobilization to and demobilization from the site. This item also includes final clean up, punch list completion, bonds, insurance, permit fees, and other general requirements costs associated with the completion of the work. Given the remote location of the project site, the estimated cost for this item is 10 % of the total construction cost.

Work Description	Unit	Quantity	Unit Cost	Total Cost
D1. Mobilization / Demobilization	EA	1	\$1,065,885	\$1,065,885

#### D2. Storm Water Pollution Prevention Plan (SWPPP)/BMPs

This item includes all materials, labor and ancillary costs associated with the contractor’s installation and maintenance of Best Management Practices (BMP’s) and erosion control measures. It also includes compliance with the project’s stormwater pollution prevention plan (SWPPP), including site monitors, reporting, and maintenance of a stabilized site including final site stabilization, revegetation, and revetment. The documentation gathered by the Advanced Assistance funds support the BMP installation cost at 1% of total construction costs.

Work Description	Unit	Quantity	Unit Cost	Total Cost
D2. SWPPP and BMPs	EA	1	\$100,000	\$100,000

#### D3. Clear & Grub

This item includes all materials, labor and ancillary costs associated with the contractor’s preparation of the site, such as the removal of topsoil, vegetation, duff, and detritus materials. This item includes off-haul and disposal, at an approved facility, of removed materials. Payment for this item is per each clear and grub activity for the project. Engineers estimate the cost of this task at 5% of the total for item D7, Dam Material Removal.

Work Description	Unit	Quantity	Unit Cost	Total Cost
D3. Clear and Grub	EA	1	\$52,000	\$52,000

**D4. Access Road Improvements & Maintenance**

This item includes all materials, labor and ancillary costs associated with the contractor’s improvement of portions of the access road, including stabilization of soils following precipitation events, repair of roadside swales, culverts, and other access issues encountered during construction. Payment for this item is by the square foot of improved road. The 20,000 square feet of improvement/maintenance is based on visits to the project site by the preliminary design engineering firm.

Work Description	Unit	Quantity	Unit Cost	Total Cost
D4. Access Road Improvements and Maintenance	SF	20,000	\$5	\$100,000

**D5. Temporary Cofferdam & Dewatering**

This item includes all materials, labor and ancillary costs associated with the contractor’s installation, building, and protection of the temporary cofferdam. This item also includes dewatering of the outlet structure area to prepare the site for the removal, dewatering and replacement of the existing dam materials. This item includes supplying and installing dewatering pumping systems to remove excess water behind the coffer dam. It also includes site security fencing, signage, and other measures necessary to protect the cofferdam during construction. Payment for this item is per installed linear foot of coffer dam.

Work Description	Unit	Quantity	Unit Cost	Total Cost
D5. Temporary Cofferdam and Dewatering Outlet Structure	LF	400	\$3,000	\$1,200,000

**D6. Bypass Pumping**

This item includes all materials, labor and ancillary costs associated with the contractor’s installation, maintenance, refueling, and security for the bypass pumping system to maintain streamflow into Franktown Creek and to ensure the maintenance of a safe pool elevation behind the cofferdam. This item includes supplying and installing generators, redundant pumps and sound attenuating enclosures, High Density Polyethylene (HDPE) bypass piping, pipe anchors, suction inlet screens, security/screening fencing, and backwater valves on discharge lines. Payment for this line item is per day of bypass pumping.

Work Description	Unit	Quantity	Unit Cost	Total Cost
D6. Bypass Pumping	DAY	120	\$2,900	\$348,000

**D7. Dam Material Removal:**

This item includes all materials, labor and ancillary costs associated with the contractor’s removal of the existing dam materials and placement of such in the storage and stockpile area adjacent to the cofferdam. Payment for this item is a per cubic yard.

Hobart Creek Reservoir Dam Resilient Infrastructure Project

Work Description	Unit	Quantity	Unit Cost	Total Cost
D7. Dam Material Removal	CY	10,400	\$100	\$1,040,000

**D8. Dam Material Dewatering:**

This item includes all materials, labor and ancillary costs associated with the contractor’s dewatering of the existing dam materials selectively stockpiled for reincorporation into the rebuilding of the dam. It includes sediment filter bags and other nuisance water collection and handling systems necessary to keep a stabilized construction site. Payment for this item is per cubic yard of dewatered material.

Work Description	Unit	Quantity	Unit Cost	Total Cost
D8. Dam Material Dewatering	CY	8,340	\$20	\$166,800

**D9. Dam Material Off-Haul & Disposal**

This item includes all materials, labor and ancillary costs associated with the contractor’s removal, off- haul, and disposal at an approved location of unsuitable dam materials encountered during excavation and removal of the dam. Payment for this item per cubic yard of disposed material.

Work Description	Unit	Quantity	Unit Cost	Total Cost
D9. Dam Material Off-haul& Disposal	CY	2,050	\$195	\$399,750

**D10. Benthic Sediment Removal**

This item includes all materials, labor and ancillary costs associated with the contractor’s excavation, removal, off-haul, and transport to the approved recycling facility of the benthic (relating to or occurring at the bottom of a body of water) material accumulated within the reservoir pool necessary to deepen the reservoir and restore its volume to permitted capacity. Payment for this item is per cubic yard of sediment removed.

NSPWD in collaboration with a local soils company will recycle the removed sediment. The company will use the removed sediment to enrich soil lacking in nutrients.

Work Description	Unit	Quantity	Unit Cost	Total Cost
D10. Benthic Sediment Removal	CY	2,000	\$195	\$390,000

**D11. Import Additional Dam Material**

This item includes all materials, labor and ancillary costs associated with the contractor’s importation of additional suitable soils for repair of the dam. This includes hauling, unloading, storage, and stockpiling of the imported material. Payment for this item is per cubic yard.

Work Description	Unit	Quantity	Unit Cost	Total Cost
D11. Import Additional Dam Material	CY	5,525	\$195	\$1,077,375

**D12. Dam Reconstruction**

This item includes all materials, labor and ancillary costs associated with the contractor’s reconstruction of the dam. This includes storage and stockpiling, moisture conditioning, compaction and consolidation of dam materials, rough and final grading, as well as installation of the two-stage sediment filter and seepage collection system in the downstream face of the dam. This item includes subgrade preparation, and installation of key slopes and benching. Payment for this item is per cubic yard of dam reconstruction.

Work Description	Unit	Quantity	Unit Cost	Total Cost
D12. Dam Reconstruction	CY	13,865	\$295	\$4,090,175

**D13. Aggregate Base Access over Dam**

This item includes all materials, labor and ancillary costs associated with the contractor’s installation and placement of aggregate base course for vehicular access over the dam crest. This item includes storage and stockpiling, moisture conditioning, compaction, and consolidation, as well as final grading. Payment for this item is per cubic yard of aggregate base installed.

Work Description	Unit	Quantity	Unit Cost	Total Cost
D13. Aggregate Base Access over Dam	CY	100	\$260	\$26,000

**D14. Rip Rap**

This item includes all materials, labor and ancillary costs associated with the contractor’s installation and placement of rip rap (rock slope protection) for protection of sloped faces on the lakeside face of the dam. This item includes hauling, unloading, storage and stockpiling of rip rap for incorporation into the work. Payment for this item is per cubic yard of rip rap placed.

Work Description	Unit	Quantity	Unit Cost	Total Cost
D14. Rip Rap	CY	750	\$65	\$48,750

**D15. New Outlet Piping & Valve Assemblies**

This item includes all materials, labor and ancillary costs associated with the contractor’s installation of the new outlet piping and valve assemblies for reservoir pool elevation control. This includes trenching and placement of pipes, installation and compaction of bedding and backfill materials, installation of water stops, concrete inlet structures, installation of valves, valve risers, and covers. It also includes pressure testing of outlet piping, erosion protection at the outlet structure, and deposition protection at the inlet structure, as well as all appurtenant equipment and material necessary for a successful and operational outlet system. Payment for this item is per each outlet pipe and valve assembly.

Work Description	Unit	Quantity	Unit Cost	Total Cost
D15. New Outlet Piping and Valve Assemblies	EA	2	\$150,000	\$300,000

**D16. New Mechanical/SCADA Building**

This item includes all materials, labor and ancillary costs associated with the contractor’s installation and erection of a new a one hundred square foot mechanical building to house the new SCADA system and protect outlet valve controls. This item includes all subgrade preparation, supplying and installing all structural steel, steel reinforced concrete, CMU walls, steel roofing and fascia trim, steel door, and all other appurtenant equipment necessary to provide a secure and operational mechanical building. Payment for this item is per square foot of building.

Work Description	Unit	Quantity	Unit Cost	Total Cost
D16. New Mechanical/SCADA Building	SF	100	\$1,200	\$120,000

**D17. Monitoring Wells (Piezometers)**

This item includes all materials, labor and ancillary costs associated with the contractor’s installation of monitoring wells in the crest of the new dam. This includes supplying and installing perforated pipe, non-woven geotextile fabric, valve cover, pressure transducers and cable, and all other appurtenant equipment necessary for a complete and functional monitoring well system. Payment for this item is per each monitoring well in place.

Work Description	Unit	Quantity	Unit Cost	Total Cost
D17. Monitoring Wells (Piezometers)	EA	2	\$50,000	\$100,000

**D18. Seismic Monitoring Equipment for Dam**

This item includes all materials, labor and ancillary costs associated with the contractor’s procurement and installation of seismic monitoring equipment, including trenching, bedding, and backfill, conduits and conductors, RTUs, and telemetry communication devices necessary for a complete and functional seismic

Hobart Creek Reservoir Dam Resilient Infrastructure Project

monitoring system. The preliminary research for seismic monitoring system purchase and installation is 1% of total construction costs. NSPWD will also reach out to the University of Nevada Reno Seismological Laboratory for potential collaboration by linking this monitoring equipment to their existing network.

Work Description	Unit	Quantity	Unit Cost	Total Cost
D18. Seismic Monitoring Equipment for Dam	EA	1	\$100,000	\$100,000

**D19. New Spillway Structure and Vehicle Access**

This item includes all materials, labor and ancillary costs associated with the contractor’s procurement and installation of a new reinforced concrete spillway structure and pre-engineered structural steel vehicular access bridge. This includes transportation, storage, subgrade preparation and bedding of the reinforced concrete spillway structure and steel bridge, as well as installation of a staff gage. It also includes anchoring of the bridge to the spillway structure. Payment for this item is complete per each spillway and vehicle access construction.

Work Description	Unit	Quantity	Unit Cost	Total Cost
D19. New Spillway Structure and Vehicle Access	EA	1	\$520,000	\$520,000

**D20. Dam Crest Improvements and Emergency Spillway**

This item includes all materials, labor and ancillary costs associated with the contractor’s installation of an emergency reinforced concrete spillway on the crest of the dam. It includes subgrade preparation and bedding, forming, reinforcing steel, and concrete placement, and curing. Payment for this item is per square foot of emergency spillway constructed.

Work Description	Unit	Quantity	Unit Cost	Total Cost
D20. Dam Crest Improvements and Emergency Spillway	SF	1,000	\$150	\$150,000

**D21. Historic Mitigation**

This item includes all materials, labor and ancillary costs associated with the contractor’s procurement and installation of historic mitigation measures. This includes site preparation and construction of informational kiosks and other signage necessary to preserve the historical resources of the existing dam structure prior to construction. The preliminary design engineering firm estimates this cost at 2% of total construction costs.

Work Description	Unit	Quantity	Unit Cost	Total Cost
D21. Historic Mitigation	EA	1	\$200,000	\$200,000

D22. SCADA

This item includes all materials, labor and ancillary costs associated with the contractor’s procurement, installation, and testing of a new Supervisory Control and Data Acquisition (SCADA) system. This includes all equipment and materials, including Programmable Logic Controller (PLC), Human-Machine Interface (HMI), and Remote Terminal Units (RTU) necessary to provide a complete and operational SCADA system. This includes all programming, screen development, and integration with piezometer transducers, seismic monitoring system, and valve controls necessary for remote monitoring and control of the new dam and appurtenant systems. This also includes operational staff training, software development and deployment. Payment for this item is per each SCADA system installed and is 20% of combined costs of items D15-D18 which represent the building and automated systems costs for the project.

Work Description	Unit	Quantity	Unit Cost	Total Cost
D22. SCADA	EA	1	\$130,000	\$130,000

D23. Weather Station

The rehabilitation of the HCRD will also include the installation of a weather station. The purpose of the station is two-fold. First, it will provide immediate information about the conditions at the dam. This will enhance safety for staff and support decision-making tasks regarding site visits. Second, in collaboration with the Reno National Weather Service office, the weather station will link to their network adding a source of data not available before. Because no internet or cellular phone service is available in this remote location, the SCADA system will conveyance of weather data. Attachment 8.4 Weather Stations Costs supports the budget amount for this line item.

Work Description	Unit	Quantity	Unit Cost	Total Cost
D23. Weather Station Equipment	EA	1	5786.70	
Weather station + camera installation	EA	1	1214.30	7,000

D24. Camera

The addition of a camera to the SCADA and weather station system also supports staff safety. Additionally, Nevada State Public Works Division is researching the possibility of linking the camera to the University of Nevada Reno (UNR) Seismological Laboratory’s Fire Watch camera network. This collaboration will also increase resiliency by allowing more time for warning when wildfire is spotted in the area. The camera’s price is an average. The camera prices ranged from \$1,099 to \$3,000. The weather rating, range of view, and compatibility with the SCADA system will determine the correct selection. The installation cost of this equipment is included with the weather station installation costs.

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Work Description	Unit	Quantity	Unit Cost	Total Cost
D24. Camera	EA	1	1,500	1,500

### Final Cost Summary

The table below shows the sum of the subtotal for each of the cost categories described above.

#### Total Project Costs

A. Existing Conditions Assessment and Engineering Design	\$729,194
B. Environmental Documentation and Permitting	\$76,350
C. Project Management, Construction Management, Inspection and Testing	\$1,410,000
D. Construction Costs	\$11,724,735
<b>Total Project Costs</b>	<b>\$13,940,279</b>



12-09-2020

### Management Costs

NSPWD is asking for partial fund for management costs in the amount of \$560,800 This amount represents 4.02% percent of the total project costs of \$13,940,279. SNPWD will use the funds to administer anticipated activities related to the award. The activities include personnel costs directly related to the tracking of expense transactions, managing contracts, and quarterly report preparation.

SNPWD based the rates on the salary plus 35% fringe. Costs will support:

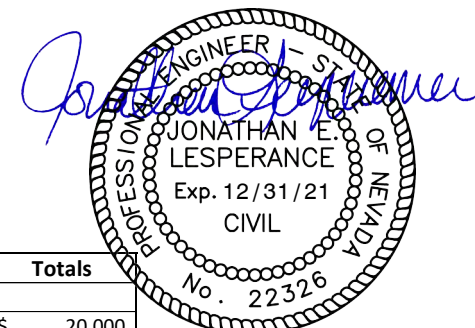
1. The Management Analyst’s time in preparing the accounts, tracking expenses, payments and directing the Administrative Assistant 3 throughout the performance period of the award. This position is responsible for compliance with 44 CFR 2 grant requirements.



Hobart Creek Reservoir Dam Resilient Infrastructure Project

2. The Contract Manager will manage the Requests for Proposals and signing of contracts for the engineering firm developing the design as well as the construction company selection and retention. This position is responsible for compliance with federal and state contracting laws. The position will manage any necessary changes in the scope of work for the contracts.
3. The Program Officer 1 charged with qualifying bids will be active only through the bidding process for a) the engineering firm to prepare final design, and b) the construction company.
4. The assigned Project Manager’s (Engineer) time in gathering of necessary documentation and preparation of the required quarterly reports during the lifespan of the project. This position will ensure the timely implementation of the project and closure of the award.
5. The assigned Administrative Assistant PCN 303 supports the contract manager with office related tasks. This position continues to provide administrative and fiscal related support to the Management Analyst 4, and the Engineer until the end of the performance period.
6. The Administrative Assistant PCN 302 provides administrative support to the Bidder Qualification Program Officer. This position also continues to provide administrative and fiscal related support to the Management Analyst 4, and the Engineer until the end of the performance period.

	\$/Hr.	Year 1		Year 2		Year 3		TOTAL
		# Hrs.	Cost (\$)	# Hrs.	Cost (\$)	# Hrs.	Cost (\$)	
Management Analyst 4 (PCN0200)	59.06	728	42,997.50	695	41,048.44	693	40,949.96	124,995.90
Contract Manager Program Officer 1 (PCN0018)	41.22	707	29,147.52	699	28,814.20	693	28,575.79	86,537.51
Bidder Qualif. Program Officer 1 (PCN0018)	41.22	707	29,147.60	700	28,850.85			57,998.45
Engineer (PCN0043)	69.53	707	49,173.03	707	49,173.03	707	49,173.03	147,519.09
Administrative Assistant 3 (PCN006)	34.65	728	25,228.48	693	24,027.12	728	25,228.48	74,484.07
Administrative Assistant 1 (PCN0303)	29.19	374	10,927.61	374	10,927.61	374	10,927.61	32,782.84
Administrative Assistant 1 (PCN0302)	29.19	418	12,202.50	416	12,141.79	416	12,141.79	36,486.08
		4,370	198,824.24	4,285	194,983.05	3,612	166,996.66	560,803.94



**BCA 2 - Scope of Work Cost Estimate**  
 Hobart Creek Reservoir Dam Resilient Infrastructure Project  
 Scope of Work Cost Estimate (Revised 11-16-21)

11/16/21

TASK #	WORK DESCRIPTION	Units	Quantity	Unit Cost	Totals
<b>A</b>	<b>Existing Conditions Assessment and Engineering Design</b>				
A1	Bathymetric Survey	EA	1	\$ 20,000	\$ 20,000
A2	Access Road Improvements Design				
	Senior Engineer	HR	125	\$ 190	\$ 23,750
	Engineer Technician	HR	540	\$ 130	\$ 70,200
A3	Seismic Retrofit Design Plans to Earthen Dam				
	Senior Engineer	HR	325	\$ 190	\$ 61,750
	Engineer Technician	HR	520	\$ 130	\$ 67,600
A4	Spillway Retrofit Design Plans				
	Senior Engineer	HR	230	\$ 190	\$ 43,700
	Engineer Technician	HR	540	\$ 130	\$ 70,200
A5	Outlet Structures and Valves Retrofit Design Plans				
	Senior Engineer	HR	160	\$ 190	\$ 30,400
	Engineer Technician	HR	470	\$ 130	\$ 61,100
A6	Mechanical Building Structural Design Plans				
	Senior Engineer	HR	160	\$ 190	\$ 30,400
	Engineer Technician	HR	390	\$ 130	\$ 50,700
A7	Instrumentation/Controls Design Plans				
	Senior Engineer	HR	160	\$ 190	\$ 30,400
	Engineer Technician	HR	310	\$ 130	\$ 40,300
A8	Third Party Peer Review				
	Senior Engineer	HR	130	\$ 190	\$ 24,700
A9	Project Advertising	EA	1	\$ 3,156	\$ 3,156
A10	Printing and Plotting	EA	1	\$ 1,088	\$ 1,088
A11	CMAR Pre-Construction Services				
	Project Manager	HR	625	\$ 150	\$ 93,750
A12	Public Outreach	EA	1	\$ 6,000	\$ 6,000
	<b>Subtotal</b>				<b>\$ 729,194</b>
<b>B</b>	<b>ENVIRONMENTAL STUDIES &amp; PERMITS</b>				
	<b>Federal</b>				
B1	Section 404 Permit/Section 10 Nationwide Permit (Army Corps of Engineers)				
	Engineer Technician	HR	70	\$ 130	\$ 9,100
B2	Endangered Species Act Section 7 Consultation (Fish, Wildlife & Migratory Birds)	HR	25	\$ 130	\$ 3,250
	Engineer Technician				
B3	Section 106 of the National Historic Preservation Act	HR	25	\$ 130	\$ 3,250
	Engineer Technician				
	<b>State (Nevada)</b>				
B4	Bureau of Water Pollution Control (401 Water Quality Permit)	HR	50	\$ 130	\$ 6,500
	Engineer Technician				
B5	Division of Water Resources (Application of Dam Plan Approval)	HR	60	\$ 150	\$ 9,000
	Staff Engineer				
B6	Division of Water Resources ( Notice of Instructions "Cofferdam")	HR	60	\$ 150	\$ 9,000
	Staff Engineer				
B7	National Pollution Discharge Elimination Systems (NPDES) Storm Water General Permit	HR	60	\$ 130	\$ 7,800
	Engineer Technician				
B8	Temporary Working in Waterways	HR	40	\$ 130	\$ 5,200
	Engineer Technician				
B9	Nevada State Parks	HR	25	\$ 150	\$ 3,750
	Staff Engineer				
B10	State Building Permit	HR	25	\$ 150	\$ 3,750
	Staff Engineer				
B11	Nevada Division of State Lands	HR	35	\$ 150	\$ 5,250
	Staff Engineer				
B12	State Historical Preservation Office Section 106 Review	HR	35	\$ 150	\$ 5,250
	Staff Engineer				
	<b>Local (Washoe County)</b>				
B13	Washoe County Dust Control Permit	HR	35	150	\$ 5,250
	<b>Subtotal</b>				<b>\$ 76,350</b>
<b>C</b>	<b>PROJECT MANAGEMENT, CONSTRUCTION MANAGEMENT, INSPECTION, TESTING</b>				
C1	Project Manager and Inspection (State Public Works Division)				
	SPWD Project Manager	HR	2,150	\$ 130	\$ 279,500
	SPWD Inspector	HR	2,900	\$ 97	\$ 281,300
C2	Construction Survey (2-man crew with GPS)	HR	476	\$ 250	\$ 119,000
C3	Service During Construction				
	Engineer	HR	1,440	\$ 190	\$ 273,600
	Engineer Technician	HR	1,620	\$ 130	\$ 210,600
	Inspection and Materials Testing	HR	1,640	\$ 150	\$ 246,000
	<b>Subtotal</b>				<b>\$ 1,410,000</b>
<b>D</b>	<b>CONSTRUCTION COSTS</b>				
D1	Mobilization/Demobilization	EA	1	\$ 1,065,885	\$ 1,065,885
D2	SWPPP/BMPs	EA	1	\$ 100,000	\$ 100,000
D3	Clear and Grub	EA	1	\$ 52,000	\$ 52,000
D4	Access Road Improvements and Maintenance	SF	20,000	\$ 5	\$ 100,000
D5	Construct temporary Cofferdam for Dewatering Outlet Structure	LF	400	\$ 3,000	\$ 1,200,000
D6	Bypass Pumping	DAY	120	\$ 2,900	\$ 348,000
D7	Dam Material Removal	CY	10,400	\$ 100	\$ 1,040,000
D8	Dam Material Dewatering	CY	8,340	\$ 20	\$ 166,800
D9	Dam Material Offhaul & Disposal	CY	2,050	\$ 195	\$ 399,750
D10	Benthic Sediment Removal	CY	2,000	\$ 195	\$ 390,000
D11	Import Additional Dam Material	CY	5,525	\$ 195	\$ 1,077,375
D12	Dam Reconstruction	CY	13,865	\$ 295	\$ 4,090,175
D13	Agg Base Access Over Dam	CY	100	\$ 260	\$ 26,000
D14	Rip Rap	CY	750	\$ 65	\$ 48,750
D15	New Outlet Piping & Valve Assembly	EA	2	\$ 150,000	\$ 300,000
D16	New Mechanical/SCADA Building	SF	100	\$ 1,200	\$ 120,000
D17	Monitoring Wells	EA	2	\$ 50,000	\$ 100,000
D18	Seismic Monitoring Equipment for Dam	EA	1	\$ 100,000	\$ 100,000
D19	New Spillway Structure and Vehicle Access	EA	1	\$ 520,000	\$ 520,000
D20	Dam Crest Improvements and Emergency Spillway	SF	1,000	\$ 150	\$ 150,000
D21	Historic Mitigation	EA	1	\$ 200,000	\$ 200,000
D22	SCADA	EA	1	\$ 121,500	\$ 121,500
D23	Weather Station and Camera	EA	1	\$ 8,500	\$ 8,500
	<b>Subtotal</b>				<b>\$ 11,724,735</b>
	<b>TOTAL ESTIMATED REPLACEMENT COST</b>				<b>\$ 13,940,279</b>

## SCOPE OF WORK: SE Washoe Home Elevation Covid Batch 1b

Home Elevation is considered by FEMA to be one of the best ways to protect your home, your family and your possessions. The proposed project plans to elevate the lowest floor of 5 homes to 3 feet above the Base Flood Elevation (BFE), of which the BFE was not established until decades after these homes were constructed. However, TRFMA will coordinate with the homeowners to encourage elevation higher than 3 feet above BFE since the cost of additional elevation and floodproof materials is minimal once the home is already mobilized. This project will increase life and safety during a flood event while reducing FEMA costs of potential payouts in claims. Betterments shall be borne by homeowners. There are also 2 alternate homes included in case any of the base 5 do not decide to move forward.

It should also be noted that all 5 of the homes as well as the 2 alternates were part of a previously approved FEMA HMGP but were not able to be completed per the HMGP approved schedule due to COVID delays and impacts associated. All of these homes have passed previous environmental review and were ready to begin elevations and would have been elevated if COVID had not delayed them. This hopefully will expedite these homes through this process schedule wise because the homeowners are very distraught; They were and are ready to go but could not due to time delays of COVID.

All the homes which are to be elevated are within the flood prone areas around Steamboat Creek/Truckee River/South Reno tributaries to the Truckee River and all have been damaged repeatedly due to historical flooding. Periodically some of these homes and neighboring homes even higher than these have historically been on the repetitive loss list. Elevating these homes will reduce future costs on the NFIP program due to inevitable future flooding in this area.

This will also improve life and safety issues as these residents will have a refuge during a flood event. It will also reduce risks to first responders who are sent into these flooded areas to serve or save these residents. Due to typical flood events occurring around New Year's Day when there is a rain on snow event, often these flood waters are near freezing in temperature and may be hazardous or contaminated. Any interaction that prevents personnel from entering these flooded areas is of benefit. The proposed project will benefit the residents of these homes as well as the first responders who perform rescues during flood events. Also the NFIP program will benefit from reduced claims/ cost outlays.

Our Elevation program first did outreach to the areas in hidden valley and the east side subdivision that we knew had historically had flood problems. We then had community meetings, went door to door, and made personal meetings to better define and explain the program to potential applicants. Upon receiving applications, the applicants denoted their interest in the program but also their willingness to allow our agency to do further engineering analysis on the home and determine appropriateness. Our agency then explained the lengthy process to receive funding for the grant as well as the tax consequences. It has been explained to these applicants that our agency found that outside of the FEMA process, the tax consequences stifled the interest in the program. However, our agency did have one applicant that did move forward with an elevation on the agencies funding 100% of the project while the tax consequence was

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100% the applicants. No other applicants so far have denoted they are willing to face the tax consequence and cost wise our board has not approved this again either.

Of the 5 homes (with 2 alternates) in this particular grant, these willing homes owners/ homes were defined as having the most severe impact and of which we could produce the biggest benefit by elevating. Of note these homes faced flooding severe impacts twice in the course of 1 month earlier in 2017 which catalyzed a round of FEMA grants in Washoe County. In the same manner, with this COVID Impact based grant we will move forward with the process defined in our handbook and as again denoted in this application.

If approved by FEMA then TRFMA will immediately notify homeowners to request proposals/ estimates for design and elevation from licensed and qualified contractors. Following best management practices from other FEMA elevation projects, TRFMA will oversee the process but the homeowners will contract directly with the contractor as the homeowners will be responsible to maintain their home in perpetuity. A complete manual that describes the program and the process for retaining a contractor has been created for the homeowners. (Please see attached "Home\_Elevation\_Handbook\_Master\_2013"). In the manual it explains that the project design for materials must be in compliance with ASCE 24-14 (Flood Resistant Design and Construction) and NFIP standards in 44 CFR Part 60. In addition before final approval of design the Existing FFE information based on a county survey of the front door sill will be verified with pre-project elevation certificates. We will then compare these pre-project elevation certificates with the post project elevation certificates when complete for final payment.

The current FEMA flood map (based on an early 1980 study) shows a BFE of 4395. for this area; however, our agency using updated topo and the past 30 years of flood history information has worked with the Corps of Engineers to determine that the BFE should actually be 4396.98. Therefore, in order to get a minimum of 3 feet of freeboard/ R&U, our agency will require a minimum FFE of 4399.98 in the Hidden Valley Area. For areas outside of this we will use the historical BFE and raise at least 3 feet higher than that. We will also recommend that homeowners elevate above this- we will however not pay for that additional raising with this grant unless it becomes more cost effective due to say a roofline requirement or some code requirement that justifies such expenditure.

As noted above and reiterated in the Home Elevation Handbook all the homes will be required to design according to the ASCE and CFR standards. In addition the permitting will design and allow the inspectors to validate such construction. Our program uses the same base as the FEMA home Elevation program used in Placer County/ Sacramento in 2005. If there are any questions we refer to other agencies country wide to determine best practices to ensure proper implementation of standards and execution of elevation methods.

Home Elevation has already proven successful in many jurisdictions. We will emulate and copy other successful programs. As we are requiring that homes be elevated at least three feet above the BFE, the probability of damage to the lowest floor of a home will be significantly reduced. As has been successful in many other FEMA home elevation programs across the country, TRFMA staff will oversee/ manage the program and the homeowners will coordinate directly with their selected licensed contractor to elevate their home to minimum criteria established by

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the program. TRFMA has compiled a complete manual for the elevation program which will be used for setting standards and managing progress payments as appropriate. Only Eligible Structure Elevation Costs per HMA Guidance Addendum (pg 77) are reimbursable for our program. This manual will be updated upon notification of FEMA approval in order to assimilate any requirements of FEMA or the State. In regards to resources, the Flood project has a full time staff of Engineers, project managers, natural resource manager, and other personnel who specifically work on flood mitigation projects for this region. Their extensive experience and capabilities will be relied on to ensure successful performance on this project.

If awarded funding to perform the proposed mitigation activity, the Flood Project will make every effort to perform the associated activities within the scope, schedule and budget as described in the application. Additionally, at the conclusion of each milestone, the Flood Project will conduct a performance review to assess project performance of each mitigation activity. No Phase 1's are expected to be needed. The Flood Project is expecting to meet the milestones as required by FEMA barring any unforeseen national emergencies like COVID.

For a typical home elevation the actual schedule will follow a similar schedule to the home we have already completed. For that home the design process actually took the longest as we had to wait for the permitting office 2 months longer than we expected for a total of 8 months. We hope that with more homes being done we can streamline this process a bit more and get it back done to 4-6 months. The contractor then was able to sever the existing utilities, dig out the foundation to be able to put supports under it for lifting as well as the jacks and prepped for lifting over the course of the next month. The actual lifting only takes a couple of days but with float we are figuring a schedule of a month especially if multiple homes are ready to go at once and in an assembly line of sorts the contractor can finish lifting one home and move to another in the course of such a month (depending on if the homeowners select a contractor with the same elevator). Once the homes are lifted then temporarily reconnecting utilities while building the raised stem wall occurs. This again in assembly fashion may take longer than just doing one house but we are expecting it to be done and the house reset back on such stem wall in the course of the next month. Then another 2 months is allowed for finish work and buttoning up for the equivalent of Certificate of Occupancy.

During this entire process the homeowner of the house we already lifted was only required to be out of the house (though possessions still in it) for the couple days of lifting and then resetting it the month or so later. In order to give final payment to the homeowners they are required to have signed the deed restriction requiring non-habitation of the space created underneath the home by raising the home. We also require the final elevation certificate for final payment. For ease this process is further explained and called out in the home elevation handbook we created as well.

For the Benefit Cost Analysis (BCA); the base 2021 FEMA evaluation letter (which updated the FEMA 2013 letter) was used with appropriate escalations due to inflation documented and added to keep Costs based to the Fall 2021. This can be see on the worksheet attached for estimates.

Multiple alternatives were considered but this was the best option. One option not selected was building levees around some of the homes. This was not selected because the footprint of the levee would have taken half of the homes and only protected the other half: which would have

## Agenda Item #5h

cost which far exceeded home elevations (by nearly 10 fold). For another neighborhood area we could have built a ring levee- but we do not feel a ring levee is acceptable as interior drainage issues also pose an unacceptable risk at this point. We did consider acquisition, but the cost for most of the homes was beyond the benefit allowed by the FEMA BCA.

Since these homes will still be owned by the residents they will be responsible for maintenance of their homes. We will have a rider that allows for flowage easements and we will protect the flowage easement via building inspections. As for continued monitoring, the Flood Project will assign a Project Manager to work closely with representatives from the state and federal Emergency Management Agencies to ensure compliance with program guidelines. If some maintenance need arises that the homeowner does not accomplish, the Flood Project will step in to make sure the activity is accomplished. At that point, TRFMA will make itself responsible to ensure the needed tasks are competitively bid and performed so the proposed activity can be addressed properly.



# HAZARD MITIGATION GRANT PROGRAM PROJECT SUBAPPLICATION

**NOTE:** Please click within the greyed section to begin typing in each section of the application.

**DISASTER NUMBER:**  
**JURISDICTION NAME:**  
**PROJECT TITLE:**  
**PROJECT NUMBER:**

DR-4523-NV
Washoe County
SE Washoe Home Elevation Covid Batch 1b

PROJECT NUMBER IS THE CONTROL NUMBER RECEIVED AT TIME OF SUCCESSFUL NOI SUBMITTAL



**Subapplications are due postmarked to NV DEM by:**

**DR-4523-NV: ASAP**  
**Deadline: July 15, 2022+90 Days**

## HAZARD MITIGATION GRANT PROGRAM (HMGP)

### INTRODUCTION

#### INTRODUCTION

As a result of the declaration of a major federal disaster or aggregate Fire Management Assistance declarations, the State of Nevada is eligible for HMGP funding. The State has established priorities to accept project subapplications from subapplicants statewide, state agencies, tribal governments, local governments, and Private Non-Profits.

Hazard mitigation activities are aimed at reducing or eliminating future damages. Activities include cost effective hazard mitigation projects and hazard mitigation plans approvable by the Federal Emergency Management Agency (FEMA).

Nevada's Enhanced State Hazard Mitigation Plan (ESHMP) accreditation resulted in additional dollars available for local agencies' hazard mitigation plan and project funding for Hazard Mitigation Grant Program (HMGP). In order to maintain ESHMP status, further information is requested by FEMA. This information is requested as a means of assessing the pro-activity of your community or agency.

#### PUBLIC ASSISTANCE

If your project is aimed at repairing a damaged facility resulting from a federally declared disaster, contact the Public Assistance (PA) Program at [disaster-recovery@dps.state.nv.us](mailto:disaster-recovery@dps.state.nv.us). HMGP does not fund repairs for damages that result after a disaster.

#### TIME EXTENSIONS

Time extensions may be requested, and will be approved or denied on a case-by-case basis. To request additional time to submit a subapplication, send an email to the [mitigation@dps.state.nv.us](mailto:mitigation@dps.state.nv.us) mailbox. The subject line must include: "Subapplication Time Extension Request (include Disaster Number and Project Control Number)". The body of the message must include justification and specific details supporting why more time is needed and how much additional time is requested.

#### QUESTIONS

Submit all HMGP subapplication questions to the following mailbox: [jwoodward@dps.state.nv.us](mailto:jwoodward@dps.state.nv.us)



## HAZARD MITIGATION GRANT PROGRAM REGULATIONS

### REGULATIONS

Federal funding is provided under the authority of the Robert T. Stafford Emergency Assistance and Disaster Relief Act (Stafford Act) through FEMA and the Nevada Division of Emergency Management (NV DEM). NV DEM is responsible for identifying program priorities, reviewing subapplications and forwarding recommendations for funding to FEMA. FEMA has final approval for activity eligibility and funding.

The federal regulations governing HMGP are found in Title 44 of the Code of Federal Regulations (44CFR), Part 201 (Planning) and Part 206 (Projects) and in Title 2 of the Code of Federal Regulations (2CFR), Part 200 (Uniform Administrative Requirements).

The FEMA regulations that establish the agency-specific process for implementing NEPA are set forth in 44 CFR Part 10. FEMA will lead the NEPA clearance process.

### FEMA GUIDANCE

FEMA requires that all projects adhere to the Hazard Mitigation Assistance Unified Guidance 2015.

## HAZARD MITIGATION GRANT PROGRAM ELIGIBILITY CHECKLIST

Before completing the subapplication, review the following HMGP eligibility checklist to ensure project meets the requirements for HMGP funding.

- Construction/Ground Breaking:** No construction or ground breaking activities are allowed prior to FEMA approval. HMGP does not fund projects that are in progress or projects that have already been completed.
- Scope of Work:** The project scope of work (SOW) must be consistent with the SOW provided in the approved Notice of Interest (NOI).
- Benefit Cost Analysis:** FEMA Benefit Cost Analysis (BCA) Toolkit Version 6.0 must be used to conduct the BCA. FEMA will only consider subapplications that use a FEMA-approved BCA methodology. Documentation to support all BCA calculations must be included in subapplication. Projects with a benefit cost ratio (BCR) of less than 1.0 will not be considered. BCA will be verified by FEMA and NV DEM upon subapplication submittal. 5% Initiative Projects do not need a BCA. Planning grants do not need a BCA.
- Subapplicant Eligibility:** Subapplicant must be an eligible State Agency, Local Government (City, County, Special Districts), Federally Recognized Tribe or Private Nonprofit (PNP) Organization. PNP is defined as private nonprofit educational, utility, emergency, medical, or custodial care facility, facilities providing essential governmental services to the general public and such facilities on Indian reservations (see 44 CFR Sections 206.221(e) and 206.434(a)(2)).
- LHMP/MJHMP:** Subapplicant must have a FEMA approved and adopted Local or Multi Jurisdictional Hazard Mitigation Plan (LHMP or MJHMP) to be eligible for HMGP funding. If a jurisdiction has its own governing body, jurisdiction must be covered under its own plan. LHMP's/MJHMP's expire five years after FEMA approval. Failure to update plan before expiration date may cause project deobligation.
- Cost Share:** Local funding match of 25% of the total project cost is required by the subapplicant. HMGP matching funds must be from a non-federal source. State does not contribute to local funding match.
- Period of Performance:** Projects must be completed (including close-out) within the 36 month Period of Performance (POP). POP begins upon FEMA approval of the subapplication.

**HAZARD MITIGATION GRANT PROGRAM  
ELIGIBILITY CHECKLIST  
(continued)**

- Complete Subapplication:** Failure to include all required documentation will delay the processing of your subapplication and may result in denial of project. The SOW, cost estimate, cost estimate narrative, work schedule and BCA must accurately mirror each other to be considered for funding. The budget narrative must include a detailed description of every cost estimate line-item, including the methodology used to estimate each cost.
- Regulations:** Subapplications that are inconsistent with state and federal HMGP regulations, or do not meet eligibility criteria will not be considered.
- Duplication of Programs:** HMGP funding cannot be used as a substitute or replacement to fund activities or programs that are available under other federal authorities, known as Duplication of Programs (DOP).
- Time Extensions:** Unless a time extension has been approved before the deadline, subapplications must be postmarked by the applicable deadline to be considered for funding.



**SUBAPPLICANT MUST BE ABLE TO CHECK EVERY BOX TO QUALIFY FOR HMGP FUNDING.**

## SUBAPPLICATION FORMAT INSTRUCTIONS

NV DEM requires the following format to be used for all HMGP subapplications.

### COMPLETE SUBAPPLICATION PACKAGE CONSISTS OF THE FOLLOWING:

**Electronic Version of the completed application**

- Table of Contents
- All electronic attachments must be clearly titled

**Send electronic version to NV DEM either by Thumb Drive or by DropBox or Microsoft Word 365 Zip function.**

- Attachments must be in one of the following formats: Microsoft Word Version 2007 (or newer), Microsoft Excel or Adobe PDF
- Benefit Cost Analysis (BCA) 6.0 must be included
- All electronic attachments must be clearly titled

### ORGANIZATION OF THE BINDER SECTIONS MUST BE TABBED IN THE FOLLOWING FORMAT:

0. Table of Contents
1. Subapplication
2. Scope of Work
3. Designs
4. Studies
5. Maps
6. Photos
7. Schedule (Additional documentation work schedule components, Gantt chart, etc.)
8. Budget ([HMGP Cost Estimate Spreadsheet](#) and cost estimate narrative)
9. Match ([Local Match Commitment Letter Template](#))
10. BCA Report ([BCA Version 6.0](#) report and BCA supporting documentation)
11. Maintenance ([Project Maintenance Letter Template](#))
12. Environmental ([FEMA's Site Information, Environmental Review and Checklist](#) and all other environmental documentation)
13. Supporting Docs (Any extra supporting documentation)

### MAIL OR DELIVER COMPLETED SUBAPPLICATIONS TO:

Nevada Division of Emergency Management  
Attention: Hazard Mitigation  
2478 Fairview Dr.  
Carson City, NV 89701

### PROJECT SUBAPPLICATION FORM

#### SUBAPPLICANT INFORMATION

1. SUBAPPLICANT:

NAME OF STATE AGENCY, TRIBAL GOVERNMENT, LOCAL GOVERNMENT, PRIVATE NON-PROFIT OR SPECIAL DISTRICT APPLYING FOR FUNDING

2. TYPE:                             STATE/LOCAL GOVERNMENT   TRIBAL GOVERNMENT   PRIVATE NON-PROFIT   SPECIAL DISTRICT  
         

3. FIPS #:                                                          IF YOU DO NOT KNOW YOUR FEDERAL IDENTIFICATION PROCESSING SYSTEM NUMBER (FIPS #), REQUEST BY EMAILING [mitigation@dps.state.nv.us](mailto:mitigation@dps.state.nv.us)

4. DUNS #:                                                          IF YOU DO NOT KNOW YOUR DATA UNIVERSAL NUMBERING SYSTEM (DUNS) #, CALL DUN & BRADSTREET (D&B) @ 1-866-705-5711 FOR INFORMATION

5. COUNTY:                                                          THE NAME OF THE COUNTY WHERE THE PROPOSED PROJECT IS LOCATED

6. POLITICAL DISTRICT NUMBERS:                             CONGRESSIONAL:     
STATE ASSEMBLY:     
STATE LEGISLATIVE:                                PROVIDE ONLY THE NUMBERS OF THE POLITICAL DISTRICTS FOR THE SUBAPPLICANT

7. PRIMARY CONTACT:                             POINT OF CONTACT FOR YOUR PROJECT. NEVADA DEM WILL CONTACT THIS PERSON FOR QUESTIONS AND/OR REQUESTS FOR INFORMATION

NAME:                              Mr.    Ms.   FIRST:      LAST:   

TITLE:                             

ORGANIZATION:                             

ADDRESS:                             

CITY:                                                          STATE:                                ZIP CODE:   

TELEPHONE:                                                          FAX:   

EMAIL:                             

8. ALTERNATIVE CONTACT:                             BACK-UP POINT OF CONTACT FOR YOUR PROJECT. NEVADA DEM WILL CONTACT THIS PERSON IF PRIMARY CONTACT IS UNAVAILABLE

NAME:                              Mr.    Ms.   FIRST:      LAST:   

TITLE:                             

ORGANIZATION:                             

ADDRESS:                             

CITY:                                                          STATE:                                ZIP CODE:   

TELEPHONE:                                                          FAX:   

EMAIL:

**LOCAL HAZARD MITIGATION PLAN INFORMATION**

**9. LOCAL HAZARD MITIGATION PLAN (LHMP) REQUIREMENT:**

- i** A FEMA approved and locally adopted LHMP is required to receive federal funding for all project subapplication activities. Subapplicants for HMGP funding must have a FEMA-approved Mitigation Plan in place at the time of sub-award. Subapplication will be reviewed to ensure that the proposed activity is in conformance with subapplicant’s plan.

For State agencies, please use the currently approved Enhanced State Hazard Mitigation Plan.

**A. NAME/TITLE OF YOUR LHMP:** Washoe County, Nevada All- Hazard Mitigation Plan

<b>B. LOCAL SINGLE JURISDICTIONAL MULTIHAZARD MITIGATION PLAN:</b>	<b>OR</b>	<b>LOCAL MULTI JURISDICTIONAL MULTIHAZARD MITIGATION PLAN:</b>	
		DATE SUBMITTED TO NV DEM:	2021
		DATE APPROVED BY FEMA:	05-09-2021
		DATE ADOPTED BY LOCAL AGENCY:	02-2020
DATE SUBMITTED TO NV DEM:		AGENCY:	Washoe Co. Emer. Mgmt.
DATE APPROVED BY FEMA:		LEAD AGENCY:	
DATE ADOPTED BY LOCAL AGENCY:			

**C. IF YOUR PROJECT IS REFERENCED IN YOUR LHMP, INDICATE WHERE THE PROPOSED PROJECT CAN BE FOUND; USE N/A FOR NOT APPLICABLE BOXES:**

CHAPTER	PART	SECTION	PAGE
		5a.3	167

**STOP DO NOT INCLUDE A COPY OF YOUR PLAN WITH SUBAPPLICATION.**

**D. PROVIDE A SHORT NARRATIVE DETAILING HOW YOUR PROJECT ALIGNS WITH THE RISK AND HAZARD ASSESSMENTS, STRATEGIES, GOALS AND/OR OBJECTIVES OF YOUR PLAN:**  
 Flood Risk Mitigation through Home Elevation

**COMMUNITY INFORMATION**

**10. COMMUNITY PARTICIPATION:**

**A. CHECK BOX(ES) IF YOUR COMMUNITY PARTICIPATES IN ANY OF THE FACTORS BELOW:**

Select a column appropriate to your type of project. Acronyms include: Community Wildfire Protection Plan (CWPP), Community Rating System (CRS) Plan and Unreinforced Masonry (URM) Participation.

FIRE	FLOOD	EARTHQUAKE
<input type="checkbox"/> CWPP, FIRE WIRE, FIRE SAFE	<input checked="" type="checkbox"/> CRS PLAN	<input type="checkbox"/> SHAKEOUT DRILL PARTICIPATION
<input type="checkbox"/> CURRENT CEQA ACTIVITY	<input type="checkbox"/> CURRENT CEQA ACTIVITY	<input type="checkbox"/> URM PARTICIPATION
<input type="checkbox"/> DEFENSIBLE SPACE	<input type="checkbox"/> HYDROLOGY STUDY	<input type="checkbox"/>

**B. PROVIDE A NARRATIVE DESCRIPTION OF ALL OF FACTORS SELECTED FROM LIST ABOVE:**

TRFMA specifically address flooding from our communities major river and its major tributaries.

**C. IS YOUR JURISDICTION REQUIRED TO PROVIDE PUBLIC NOTICE OF THIS PROJECT?**

Yes  No If yes, provide details:

Home Elevation has already been publically approved.

**PROJECT INFORMATION**

**11. PROJECT TITLE:** SE Washoe Home Elevation Covid Batch 1b

MUST USE THE SAME PROJECT TITLE ORIGINALLY USED IN THE APPROVED NOTICE OF INTEREST (NOI). IF YOU NEED TO CHANGE YOUR PROJECT TITLE, CONTACT NV DEM at [mitigation@dps.state.nv.us](mailto:mitigation@dps.state.nv.us)

**12. PROJECT LOCATION:**

**A. IDENTIFY THE COUNTY/COUNTIES WHERE THE ACTIVITY WILL OCCUR:**

Washoe County

**B. LATITUDE/LONGITUDE COORDINATES:**

FEMA requires that all projects be geo-coded using latitude and longitude (lat/long) using NAD-83 or WGS-84 datum. The lat/long coordinates must be expressed in degrees including five or more decimal places (e.g., latitude 36.999221, longitude -109.044883).

LATITUDE
39.495

LONGITUDE
-119.724



**IF THERE ARE MORE THAN ONE SET OF LAT/LONG COORDINATES, PROVIDE ON SEPARATE DOCUMENT AND ADD TO MAP SECTION OF BINDER.**

**C. STRUCTURE COORDINATES:**

- For projects that protect buildings or other facilities, provide coordinates for each structure at either the front door of the structure or the intersection of the public road and driveway that is used to access the property.
- For large activity areas, such as detention basins or vegetation management projects, the location must be described by three or more coordinates that identify the boundaries of the project.
- The polygon created by connecting the coordinates must encompass the entire project area.

See attached Property Information

**D. STAGING AREA:**

Describe the project staging area. This is the area where the project equipment, materials and/or debris will be staged. Include a vicinity map with the proposed staging area(s) in the map section of the binder.

Each home will utilize its own parcel for staging activities.



**AERIAL MAP(S) OF STAGING AREA(S) MUST BE INCLUDED IN SUBAPPLICATION.**

**E. SITE PHOTOS:**

- A minimum of three ground photos per project site are required. Include in photo section of the binder.



**F. MAPPING REQUIREMENTS:**

Provide the following mapping elements in the map section of the binder:

- If project area has been mapped using GIS software, include the completed Shapefiles in electronic versions of full application.
- Include a vicinity map of the general area showing major roads. Aerial photographs may be used as vicinity maps.
- Prominently mark the project location on the vicinity map.
- Provide a detailed project map that clearly identifies the project boundaries.
- Project map must show all lat/long coordinates provided in the project description.
- Vicinity map and the project map must both have a north arrow and scale.

**i SEND ONLY ELECTRONIC VERSIONS OF MAPS.**

**G. PUBLIC ASSISTANCE (PA) PROGRAM FUNDING:**

List any Public Assistance Disaster Survey Reports (DSR) or Project Worksheets (PWs) that were completed at the project location from previous disasters. List all current engagement with PA for this current disaster and include date(s) if known:

NA
----

**H. DEED RESTRICTIONS THAT LIMIT FEDERAL FUNDING:**

Is there a deed restriction or permanent conservation easement on the property at the project site that would prohibit federal disaster funding (e.g., a previously FEMA funded acquisition of a structure on this property)? If yes, describe in detail.

NA
----

**13. PROJECT DESCRIPTION:**

**A. APPLICATION TYPE:**

- Project    5% Activity

*5% activities are defined as mitigation actions that are consistent with your local hazard mitigation plan and meet all HMGP requirements, but may be difficult to conduct a standard BCA to prove cost-effectiveness. Examples: early earthquake warning system, back-up generators for critical facilities, public awareness campaign, mitigation specific community outreach activities.*

**B. PROJECT TYPE:**

Select at least one project type; select as many as needed to accurately describe project.

<input type="checkbox"/> EARTHQUAKE	<input type="checkbox"/> FIRE	<input checked="" type="checkbox"/> FLOOD	<input type="checkbox"/> OTHER
<input type="checkbox"/> CODE ENFORCEMENT	<input type="checkbox"/> DEFENSIBLE SPACE	<input type="checkbox"/> ACQUISITION	<input type="checkbox"/> CRITICAL FACILITY GENERATOR(S)
<input type="checkbox"/> NON-STRUCTURAL	<input type="checkbox"/> FIRE RESISTANT BUILDING MATERIALS	<input type="checkbox"/> DRY FLOOD PROOFING	<input type="checkbox"/> DROUGHT <input type="checkbox"/> TSUNAMI
<input type="checkbox"/> STRUCTURAL	<input type="checkbox"/> FIRE VEGETATION MANAGEMENT	<input type="checkbox"/> FLOOD CONTROL	<input type="checkbox"/> WIND
<input type="checkbox"/> NON-STRUCTURAL & STRUCTURAL	<input type="checkbox"/> SOIL STABILIZATION	<input checked="" type="checkbox"/> ELEVATION	<input type="checkbox"/> OTHER: <input style="width: 100px; height: 20px;" type="text"/>
<input type="checkbox"/> <u>CLIMATE RESILIENCY MITIGATION ACTION</u> (CRMA): Projects that mitigate risk through restoration of the natural environment			



**C. DESCRIBE PROBLEM/HAZARDS/RISKS:**

Describe the problem this project is attempting to solve and the expected outcome. Describe the hazards and risks to life, safety and any improvements to property in the project area for at least the last 25 years. Describe in detail how the project reduces hazard effects and risks.

Major floods have occurred approximately every 10 years in this area ie, 1986, 1997, 2005, 2017. At a minimum each of these events have affected these homes with other events also occurring. Historically, there is a Rep Loss home included and it unfortunately is higher in elevation than most the other homes in this application. These particular homes are in an area that is not conducive to structural levee protection due to interior ponding / ring levee problems associated with that solution. Each flood event requires not only loss of personal possessions and risk to residents but also to life saving and support personnel. For these and many other reasons, Home Elevation has already proven successful in many jurisdictions. We will emulate and copy other successful programs. As we are requiring that homes be elevated at least three feet above the BFE, the probability of damage to the lowest floor of a home will be significantly reduced. (We have and will adopt FEMA manuals- see available manual we created for the program- Home Elevation Handbook.)

**D. DESCRIBE RECENT EVENTS THAT INFLUENCED THE SELECTION OF THIS PROJECT:**

Describe recent events (e.g. changes in the watershed, discovery of a new hazard, zoning requirements, inter-agency agreements, etc.) that influenced the selection of this project.

Since the BFE was determined, updated topo and better modeling techniques have shown that the BFE is in fact 1.8 feet higher than was originally called for from FEMA maps (1984-6). Most of these homes were built in the 1960s typically before any FEMA maps were available. In addition, in the past 2 years these homes have risked or even experienced flooding at least twice and that is what has been estimated at just a 40 year event. A 100 year event would have caused much more damage. The homes were are proposing to elevate are known risks that we as a community and FEMA will benefit from having elevated.

**E. SCOPE OF WORK (SOW):**

**STATE EXACT SOW DOCUMENT TITLE:**

SOW for SE Washoe County Home Elevation- Covid Batch 1b

1. Describe the entire SOW of the project in clear, concise, ample detail.
2. Must provide a thorough description of **all tasks and activities** to be undertaken.
3. Must be written in sequential order from start to finish of the project.
4. Describe any land acquisition activities, and/or right-of-way or access easements that need to be obtained.
5. If structural, discuss how the structure/building/facility will be constructed or retrofitted.
6. Include building or structure dimensions, material types, depth and width of excavations, volume of materials excavated, type of equipment to be used, staging and parking areas, and any phasing of the project.
7. If any tunneling is proposed, describe the method and any temporary trenches or pits.
8. Describe any demolition activities that need to occur prior to construction or retrofitting.



**INSERT THIS DOCUMENT IN THE SOW ORDER OF YOUR ELECTRONIC DOCUMENTS.**

**F. HAS YOUR JURISDICTION PREVIOUSLY RECEIVED HMGP FUNDING?**

Yes  No  Unknown | If yes, provide disaster number(s):

**G. HAS YOUR JURISDICTION RECEIVED ANY OTHER FUNDING?**

Describe all other funding received for this project and all other recent projects. Identify the funding source (i.e., Federal, State, Private, etc.).

PDM 2016 to Elevate 10 other homes in Flood Prone areas of Washoe County, 2017 HMGP to elevate 11 homes, 2019 HMGP to elevate 3 homes still in environmental review

**H. RELATED PROJECTS:**

Describe any other projects or project components (whether or not funded by FEMA), which may be related to the proposed project, or are in (or near) the proposed project area. FEMA must look at all projects to determine a cumulative effect. FEMA reviews all interrelated projects under NEPA regulations.

TRFMA is not designing larger river flood control features that will require permitting via the Corps of Engineers; however, this home elevation project is not related to the future Corps permitted project and is about 1.5 miles away in distance.

**I. HAZARD ANALYSIS TYPE:**

Select the hazard(s) below that this project will protect against. Select as many as needed.

- |  |   |   |  |
|--|---|---|--|
| <input type="checkbox"/> BIOLOGICAL      | <input type="checkbox"/> EARTHQUAKE       | <input type="checkbox"/> LAND SUBSISTENCE | <input type="checkbox"/> TERRORIST               |
| <input type="checkbox"/> CHEMICAL        | <input type="checkbox"/> FIRE             | <input type="checkbox"/> MUD/LANDSLIDE    | <input type="checkbox"/> TORNADO                 |
| <input type="checkbox"/> CIVIL UNREST    | <input type="checkbox"/> FISHING LOSSES   | <input type="checkbox"/> NUCLEAR          | <input type="checkbox"/> TOXIC SUBSTANCES        |
| <input type="checkbox"/> COASTAL STORM   | <input checked="" type="checkbox"/> FLOOD | <input type="checkbox"/> SEVERE ICE STORM | <input type="checkbox"/> TSUNAMI                 |
| <input type="checkbox"/> CROP LOSSES     | <input type="checkbox"/> FREEZING         | <input type="checkbox"/> SEVERE STORM(S)  | <input type="checkbox"/> WINDSTORM               |
| <input type="checkbox"/> DAM/LEEVE BREAK | <input type="checkbox"/> HUMAN CAUSE      | <input type="checkbox"/> SNOW             | <input type="checkbox"/> OTHER (describe below): |
| <input type="checkbox"/> DROUGHT         | <input type="checkbox"/> HURRICANE        | <input type="checkbox"/> SPECIAL EVENTS   |  |

**J. DESIGN PLANS:**

If your project requires design plans, plans should be prepared to supplement the SOW. If the project involves ground disturbance, (e.g. enlarging ditches or culverts, diversion ditches, detention basins, storm water improvements, etc.) include the following:

1. **Scale:** Plans should be drawn to scale (e.g. 1" to 100' or 1" to 200') depicting the entire land parcel, showing buildings, improvements, underground utilities, other physical features, dimensions and cross sections.
2. **Identification:** Indicate agency name, land owner, civil engineer, soil engineer, geologist, map preparer, and date of map preparation. Also, indicate the name of the project.
3. **Legend/Orientation:** Include a legend explaining all lines and symbols. Identify property acreage and indicate direction with a north arrow (pointing to top or right hand side of the plan).
4. **Dimensions:** Show property lines and dimensions. Also, show boundary lines of project and their dimensions if only a portion of the property is being utilized for the project.
5. **Structures:** Identify all existing and proposed buildings and structures including storm drains, driveways, sidewalks and paved areas.
6. **Utilities:** Indicate names and location of utilities on property (water, sewage, gas, electric, telephone, cable).
7. **Roads/Easements:** Indicate location, names, and centerline of streets and recorded roads. Identify any utility, drainage or right-of-way easements on the property.
8. **Drainage:** Show the location, width and direction of flow of all drainage courses on site.
9. **Grading/Topographic Information:** Show existing surface contours on-site and bordering the property
10. **Parking:** Show all construction parking and staging areas and provide dimensions.
11. **Cross Sections:** Provide cross sections of proposed buildings, structures or other improvements, and any trenches, temporary pits or catchment basins.

Agenda Item #5h

- If applicable, provide studies and engineering documentation, including any Hydrology and Hydraulics (H&H) data.
- If applicable, provide drawings or blueprints that show the footprint and elevations.



**PLEASE SEND ELECTRONIC VERSIONS OF DESIGN PLANS, DRAWINGS OR BLUEPRINTS.**

**K. PROJECT ALTERNATIVES:**

Identify three project alternatives:

**1. ALTERNATIVE #1 – NO ACTION:**

Describe the No Action alternative below. The No Action alternative evaluates the consequences of taking no action and leaving conditions as they currently exist.

These homes will continue to flood approximately every decade with associated claims and damages including risk to life potentially.

**2. ALTERNATIVE #2 – PROPOSED ACTION:**

Describe the Proposed Action alternative below. The Proposed Action alternative is the proposed project to solve the problem. Explain why the proposed action is the preferred alternative. Identify how the preferred alternative will solve the problem, why the preferred alternative is the best solution for the community, why and how the alternative is environmentally preferred and why the project is the economically preferred alternative.

The selected project was chosen by our board and technical advisory committee because it was not only the most cost effective solution but also maintained the integrity of the neighborhood affected. In elevating the homes, the residents are removed from having the First Floor wet and in harms way but they also are less of an impact to emergency personnel that do not need to come rescue them. The homes themselves are able to remain where-as building a levee would eliminate about half of these homes and cost much more.

**3. ALTERNATIVE #3 – SECOND ACTION ALTERNATIVE:**

Describe the Second Action alternative below. The Second Action alternative described must also solve the described problem. State why this alternative wasn't chosen. It must be a viable project that could be substituted in the event the proposed action is not chosen.

Multiple alternatives were considered but they were not the best option. One option not selected was building levees around some of the homes. This was not selected because the footprint of the levee would have taken half of the homes and only protected the other half: which would have cost which far exceeded home elevations (by nearly 10 fold). For another street we could have built a ring levee- but we do not feel a ring levee is acceptable as interior drainage issues also pose an unacceptable risk at this point. We did consider acquisition, but the cost for most of the homes was beyond the benefit allowed by the FEMA BCA.

**WORK SCHEDULE INFORMATION**

**14. PROJECT WORK SCHEDULE:**

The intent of the work schedule is to provide a realistic appraisal of the time and components required to complete the project.

- Describe each of the major work elements and milestones in the description section below.
- Project subapplication examples are: construction, architectural, design, engineering, inspection, testing, permits, project management, mobilization and de-mobilization.
- State the total timeframe anticipated for each of the work elements.
- State the total timeframe anticipated to complete the project.
- Work schedule must mirror SOW, budget and BCA.OPTIONAL: Provide the work schedule in GANTT chart form as supplemental documentation in the work schedule section of the binder Include this information as an example.

WORK SCHEDULE EXAMPLE		
#	DESCRIPTION	TIMEFRAME
1.	Kick-off, 90% design meetings	3 months
2.	Final contract drawing development	5 months
3.	Open bids and award contract	4 months
4.	Construction – Mobilization	5 months
5.	Construction – Demolition	4 months
6.	Construction – Concrete and conduit work	2 months
7.	Construction – Trenching	2 weeks
8.	Construction – Utility relocation	4 months
9.	Construction – Electrical Installation	1 month
10.	Construction – Site Restoration	1 week
11.	Construction – Complete punch list	2 months
12.	Construction – Demobilization	1 week
13.	Project Close-out and record drawings	2 months
14.	Grant Close out	3 months
<b>TOTAL MONTHS:</b>		<b>36 months</b>



**TOTAL PROJECT DURATION (INCLUDING CLOSE-OUT) MUST NOT EXCEED A 36 MONTH PERIOD OF PERFORMANCE (POP).**

#	DESCRIPTION	TIMEFRAME
1.	Notification of FEMA award via state and fed	1 mo
2.	Identification of Contractor(s) to perform structure elevations	3 mo
3.	Structure Assessments to determine elevation strategy (after 2)	3 mo
4.	Home Elevation (after 3)	18 mo
5.	Grant Administration (concurrent)	36 mo
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.	Project Close-out (after 4 and concurrent with 5)	
19.	<b>STANDARD VALUE (DO NOT CHANGE)</b> Grant Close-out	3 months
<b>TOTAL MONTHS:</b>		<b>36 mo</b>

If more lines are needed than provided, indicate the title of document in box 1 and attach a separate work schedule in the schedule section of binder.



**COST ESTIMATE INFORMATION**

**15. HMGP COST ESTIMATE SPREADSHEET:**

**A. COST ESTIMATE INSTRUCTIONS:**

Using the HMGP Cost Estimate Spreadsheet, provide a detailed cost estimate breakdown.

- Cost estimate describes the anticipated costs associated with the SOW for the proposed mitigation activity. Cost estimates must include detailed estimates of cost item categories.
- Only include costs that are directly related to performing the mitigation activity. If additional work, such as remodeling, additions, or improvements are being done concurrently with the mitigation work, do not include these costs in the submitted budget.
- Documentation that supports the budget must be attached to the subapplication in the budget section of the binder.
- Total costs must be consistent with the requested federal share plus the matching funds and must be consistent with the project cost in the Benefit Cost Analysis (BCA), SOW and work schedule.

#	ITEM NAME	Unit Qty	UNIT	UNIT COST	COST EST TOTAL
1.	Pre-Award Costs: Develop BCA	4	HR	\$150	\$600
2.	Temp. Inlet Filter Rolls	4	EA	\$250	\$1000
3.	Temp. Fiber Roll	1850	LF	\$3	\$5550
4.	Hydraulic Mulch	1000	SQYD	\$2	\$2000
5.	Plane Asphalt Concrete Pavement	650	SQYD	\$22	\$14300
6.	Street Sweeping for 30 days	30	EA	\$350	\$10500
7.	Roadway Excavation	70	CY	\$40	\$2800
8.	Aggregate Base, Class 2	210	CY	\$75	\$15750
9.	Remove Concrete Pavement	650	SQYD	\$340	\$10540
10.	Asphalt Concrete, Type B	180	TON	\$150	\$27000
11.	Asphalt Concrete, Leveling	10	TON	\$300	\$3000
12.	Asphalt Concrete Dike, Type A	235	LF	\$15	\$3525
13.	Asphalt Concrete Dike, Type F	125	LF	\$8	\$1200
14.	Place Asphalt Concrete	15	SQFT	\$8	\$120
15.	18" Corrugated Steel Pipe Riser	5	LF	\$125	\$625
16.	24" Reinforced Concrete Pipe	275	LF	\$170	\$46750
17.	84" Reinforced Concrete Pipe Install	572	LF	\$400	\$228800
18.	Precast Triple Concrete Box Culvert	44	LF	\$1500	\$66000
19.	Curb Inlet - Type B-1 (L=9')	1	EA	\$6000	\$6000
20.	Curb Inlet - Type B-1 (L=13')	1	EA	\$6300	\$6300
21.	Curb Inlet - Type B-1 (L=15')	1	EA	\$6800	\$6800
22.	Storm Drain Cleanout - Type A-8	3	EA	\$7500	\$22500
23.	8" PVC Sewer	89	LF	\$100	\$8900
24.	Cellular Block (Precast)	4100	SQFT	\$20	\$82000
25.	Project Identification Sign	2	EA	\$1000	\$2000
<b>Total Project Cost Estimate:</b>					<b>\$573480</b>

**B. INELIGIBLE COSTS:**

The following are ineligible line items:

- Lump Sums
- "Other" Costs
- Cents (must use whole dollar amounts, round unit prices up to whole dollars)
- Contingency Costs
- Indirect Charges
- Miscellaneous Costs
- Overhead Costs

**C. PRE-AWARD COSTS:**

Eligible pre-award costs are costs incurred after the disaster date of declaration, but prior to grant award. Pre-award costs directly related to developing the application may be funded.

- Developing a BCA
- Submission of subapplication
- Workshops or meetings related to development
- Preparing design specifications
- Gathering environmental and historic data



**Subapplicants who are not awarded funds will not receive reimbursement for pre-award costs.**

**D. COST ESTIMATE NARRATIVE:**

FEMA requires a cost estimate narrative that explains all projected expenditures in detail. The cost estimate narrative is intended to mirror the cost estimate spreadsheet and should include a full detailed narrative to support the cost estimates listed in the HMGP Project Cost Estimate Spreadsheet. If your cost estimate includes City, County, or State employees' time (your agency), include personnel titles and salary/hourly wages plus benefits for a total hourly cost. Detailed timesheets must be retained.

Title the document "Cost Estimate Narrative" and include in the budget section of the binder.

**16. FEDERAL/NON-FEDERAL SHARE INFORMATION:**

**A. FUNDING RESTRICTIONS:**

HMGP funding is restricted to a maximum of \$5 million federal share for each project subapplication. FEMA will contribute up to 75 percent of the total project cost. A minimum of 25 percent of the total eligible costs must be provided from a non-federal source. State does not contribute to local cost share.

**For example:** for a \$6,250,000 total project cost, the federal requested share (75 percent) would be \$5,000,000. The non-federal match share (25 percent) provided would be \$1,250,000.

A jurisdiction may contribute an amount greater than the 25 percent non-federal share.

**For example:** for a \$10,000,000 total project cost, the federal requested share cannot exceed \$5,000,000. Therefore, the non-federal match provided must be \$5,000,000, which exceeds 25 percent of the total cost share. The sum of the non-federal and federal shares must equal the total project cost.

**B. TOTAL PROJECT COST ESTIMATE:**

	1272021
--	---------

Enter total cost formulated on [HMGP Cost Estimate Spreadsheet](#) ENTER \$ IN BOX ABOVE



**VERIFY ALL AMOUNTS ENTERED ARE ACCURATE. INCORRECT AMOUNTS WILL DELAY PROCESSING OF YOUR SUBAPPLICATION.**

<b>FEDERAL SHARE (75% MAXIMUM)</b>	REQUESTED AMOUNT:	1144819	ENTER \$ IN BOX ABOVE
	PERCENTAGE AMOUNT:	90	ENTER % IN BOX ABOVE
<b>NON-FEDERAL SHARE (25% MINIMUM)</b>	REQUESTED AMOUNT:	127202	ENTER \$ IN BOX ABOVE
	PERCENTAGE AMOUNT:	10	ENTER % IN BOX ABOVE

**C. NON-FEDERAL MATCH SOURCE: MATCH COMMITMENT LETTER:**

- Use the [Local Match Commitment Letter Template](#) to complete this section and add completed letter to the match section of the binder.
- A signed Match Commitment Letter must be provided on agency letterhead.
  - The non-federal source of matching funds must be identified by name and type.
  - If "other" is selected for funding type, provide a description.
  - Provide the date of availability for all matching funds.
  - Provide the date of the Funding Match Commitment Letter.
  - The funds must be available at the time of submission unless prior approval has been received from NV DEM.
  - If there is more than one non-federal funding source, provide the same information for each source on an attached document.
  - Match funds must be in support of cost items listed in the cost estimate spreadsheet.
  - Requirements for donated contributions can be found in 2 CFR 200.306.

**BENEFIT/COST EFFECTIVENESS INFORMATION**


**17. BENEFIT/COST EFFECTIVENESS INFORMATION**

**A. BCA INSTRUCTIONS:**

FEMA will only consider subapplications from subapplicants that use a FEMA-approved methodology to conduct the Benefit Cost Analysis (BCA). BCA must be legible, complete and well-documented.

- Project BCAs must demonstrate cost-effectiveness through a Benefit Cost Ratio (BCR) of 1.0 or greater.
- Projects with a BCR of less than 1.0 will not be considered for funding.
- Total project cost must be used in the BCA.
- Maintenance of a completed HMGP project is not an eligible reimbursement activity, but must be included in the BCA.

BCA Version 6.0 is the only software that is allowed for conducting a BCA. Some project types may qualify for pre-calculated benefits. Additional information on the BCA Toolkit is available at: <https://www.fema.gov/benefit-cost-analysis>.

 The FEMA BCA Technical Assistance Helpline is available to provide assistance with FEMA’s BCA software by calling 1-855-540-6744 or via email at [BCHelpLine@FEMA.dhs.gov](mailto:BCHelpLine@FEMA.dhs.gov). The FEMA helpline is only to be utilized for technical assistance questions. The FEMA helpline will not verify the accuracy of your BCA.

**B. BCA INFORMATION:**

Once the BCA is completed, enter information requested below.

1. **NET PRESENT VALUE OF PROJECT BENEFITS:**
2. **TOTAL PROJECT COST ESTIMATE:**
3. **BENEFIT COST RATIO:**

**C. ANALYSIS TYPE:**

- |  |                                   |   |                                     |
|--|-----------------------------------|---|-------------------------------------|
| <input checked="" type="checkbox"/> FLOOD                  | <input type="checkbox"/> WILDFIRE | <input type="checkbox"/> EXEMPT (5% PROJECTS) | <input type="checkbox"/> EARTHQUAKE |
| <input type="checkbox"/> HURRICANE WIND                    | <input type="checkbox"/> DROUGHT  | <input type="checkbox"/> PRE-CALCULATED       | <input type="checkbox"/> LANDSLIDE  |
| <input type="checkbox"/> DAMAGE FREQUENCY ASSESSMENT (DFA) |                                   |   |                                     |

**D. ANALYSIS DATE (date BCA was conducted):**

**E. PROVIDE BCA ELECTRONIC COPIES IN FORMAT DESCRIBED BELOW:**

- Provide An electronic copy of the report in the BCA section of the binder and all backup documentation for information used in the BCA.

**MAINTENANCE ASSURANCE INFORMATION**

**18. PROJECT MAINTENANCE INFORMATION:**

**A. MAINTENANCE ASSURANCE LETTER:**

- Using the [Project Maintenance Letter Template](#), identify all maintenance activities required to preserve the long-term mitigation effectiveness of the project.
  - Examples of maintenance include: inspection of the project, cleaning and grubbing, trash removal, replacement of worn out parts, etc.
  - Attach a maintenance schedule, estimated annual costs, and a signed maintenance commitment letter for the useful life of the project.

**NATIONAL FLOOD INSURANCE PROGRAM (NFIP)**

**19. NFIP INFORMATION:**

***i* CONTACT YOUR COUNTY OR LOCAL FLOODPLAIN ADMINISTRATOR FOR NFIP INFORMATION.**

**A. NFIP PARTICIPATION:**

- 1. Is the jurisdiction where the project is located participating in the NFIP? YES  NO 
  - a. If yes, are they in good standing? YES  NO
  - b. If no, explain:

**B. PROJECT LOCATION:**

- 1. Is this project located in a floodplain or floodway designated on a FEMA Flood Insurance Rate Map (FIRM)? YES  NO 
  - a. Mark the project location on the FIRM and attach to subapplication in the maps section of the binder.
- 2. Provide the following information for the location of the project:
  - a. FIRM panel number:
  - b. FIRM zone designations:
  - c. NFIP community ID number:

- C. LAST [COMMUNITY ASSISTANCE VISIT \(CAV\)](#) DATE:

**ENVIRONMENTAL INFORMATION**

**20. ENVIRONMENTAL INFORMATION:**

**A. FEMA ENVIRONMENTAL CHECKLIST:**

- Complete the [FEMA Site Information, Environmental Review, and Checklist](#) and attach to the environmental section of the binder. Provide a detailed response to each question. Attach supporting documentation in compliance with [FEMA's frontloading requirements](#).



## PRINT THIS PAGE – ORIGINAL SIGNATURE IS REQUIRED

### PROJECT CONDITIONS

Indicate by checking each box below that you will adhere to these listed project conditions.

- If during implementation of the project, ground-disturbing activities occur and artifacts or human remains are uncovered, all work will cease and FEMA, NV DEM, and the State Historic Preservation Officer (SHPO) will be notified.
- If deviations from the approved scope of work result in design changes, the need for additional ground disturbance, additional removal of vegetation, or will result in any other unanticipated changes to the physical environment, FEMA will be contacted and a re-evaluation under NEPA and other applicable environmental laws will be conducted.
- If wetlands or waters of the U.S. are encountered during implementation of the project, not previously identified during project review, all work will cease and FEMA will be notified.
- Due to the Federally mandated Environmental and Historic Preservation (EHP) review; no construction will occur for this project prior to FEMA and NV DEM approval.

### AUTHORIZATION

The undersigned does hereby submit this subapplication for financial assistance in accordance with the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program (HMGP) and the State Hazard Mitigation Administrative Plan and certifies that the subapplicant (e.g., organization, city, or county) will fulfill all requirements of the program as contained in the program guidelines and that all information contained herein is true and correct to the best of our knowledge.

Subapplicant Authorized Agent

**NAME:** George Robison, PE

**TITLE:** Director

**ORGANIZATION:** TRFMA

**SIGNATURE:**

**DATE:**

*G. Robison*  
7/15/22

Agenda Item #5h



## LOCAL MATCH FUND COMMITMENT LETTER

July 15, 2022

Janell Woodward

Nevada Division of Emergency Management

State Hazard Mitigation Officer

2478 Fairview Drive

Carson City, NV 89701-6824

RE: FY2022 HMGP Subapplication Funding Match Commitment Letter

Dear State Hazard Mitigation Officer/ Ms. Woodward,

As part of the Hazard Mitigation Grant Program process, a local funding match of at least 10% is required. This letter serves as Truckee River Flood Management Authority's (TRFMA) commitment to meet the local match fund requirements for the Hazard Mitigation Grant Program.

<b>SOURCE OF NON-FEDERAL FUNDS:</b>	<b>LOCAL AGENCY FUNDING</b>	<b>OTHER AGENCY FUNDING</b>	<b>PRIVATE NON-PROFIT FUNDING</b>	<b>STATE AGENCY FUNDING</b>
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**NAME OF FUNDING SOURCE:**

**FUNDS AVAILABILITY DATE:**

PROVIDE EXACT MONTH/DATE/YEAR OF AVAILABILITY OF FUNDS

**FEDERAL SHARE AMOUNT REQUESTED:**

MUST MATCH \$ AMOUNT PROVIDED IN SUBAPPLICATION

Agenda Item #5h

Name  
Page 2 of 2

**SOURCE OF NON-FEDERAL FUNDS:**

LOCAL AGENCY FUNDING

OTHER AGENCY FUNDING

PRIVATE NON-PROFIT FUNDING

STATE AGENCY FUNDING

**LOCAL SHARE AMOUNT MATCH:**

\$127,202

MUST EQUAL A MINIMUM OF THE 25% FEDERAL SHARE REQUESTED

**FUNDING TYPE:**

Cash (5%) and Agency Personnel (5%)

EXAMPLES: ADMINISTRATION, CASH, CONSULTING FEES, ENGINEERING FEES, FORCE ACCOUNT LABOR, AGENCY PERSONNEL, PROGRAM INCOME, ETC.

If additional federal funds are requested, an additional local match fund commitment letter will be required.

Please contact Eric Scheetz, PE at 775-850-7473 or [escheetz@washoecounty.gov](mailto:escheetz@washoecounty.gov) with questions.

Sincerely,



George Robison, P.E.  
Executive Director

GER/dc

## Agenda Item #5h

Budget Narrative: SE Washoe Home Elevation Covid Batch 1b

**Task:** Home Elevation (Construction and Engineering/ Permitting)

**Description:** Home Elevation for: 6550 Pebble Beach, 5795 Pelham, 1995 Parkway, 6225 Pebble Beach, 6350 Plum Hollow

**Cost:** Based on 2021 FEMA BCA update letter and then carried to 2022 inflation~95% of \$254,405 EA for a total of \$1,208,419.87 (95% of overall budget)

**Task:** Management

**Description:** Cost associated with management of the grant at 5% of the project cost (not including pre-award costs)

**Cost:** \$63,601.05

### **Labor Classifications Rate Hours Cost**

Project Director/ Atty \$300

Senior Project Manager/ Senior Licensed Engineer/ Senior Financial Analyst \$245

Professional Licensed Engineer/ Licensed Surveyor \$165

Analyst \$125

**Summary:** The above tasks derive the control and management for the entire mitigation project. Am more detailed excel spreadsheet is available as a separate attachment- ie HE estimate info 2022 which can be viewed as an Engineer's Estimate of Probable Cost.

For the Benefit Cost Analysis (BCA); the base 2021 FEMA evaluation letter (which updated the FEMA 2013 letter) was used with appropriate escalations due to inflation documented and added to keep Costs based to the Fall 2021. This can be seen on the worksheet attached for estimates.

Multiple alternatives were considered but this was the best option. One option not selected was building levees around some of the homes. This was not selected because the footprint of the levee would have taken half of the homes and only protected the other half: which would have cost which far exceeded home elevations (by nearly 10 fold). For another neighborhood area we could have built a ring levee- but we do not feel a ring levee is acceptable as interior drainage issues also pose an unacceptable risk at this point. We did consider acquisition, but the cost for most of the homes was beyond the benefit allowed by the FEMA BCA.

The selected homes in this submittal have already been reviews by FEMA in a previously expired grant (which expired due to COVID delays). This should aid the estimate in maintaining current values as hopefully work can be expedited.





## Hazard Mitigation Grant Program DR-4523 Subapplication Scoring

SUBAPPLICATION INFORMATION	
Subapplicant:	Click or tap here to enter text.
Subapplication Title:	Click or tap here to enter text.

---

SCORER INFORMATION <i>please do NOT sign until all questions are answered – Form locks!</i>			
Name:	Click or tap here to enter text.	Title:	Click or tap here to enter text.
Phone:	Click or tap here to enter text.	Email:	Click or tap here to enter text.
Signature:	<b>X</b> _____	Date:	Click or tap to enter a date.

### Instructions:

Please answer Questions 2-6, unhighlighted on this form, based on your review of the subapplication package provided for the respective subapplicant. When complete, please sign above.



## Hazard Mitigation Grant Program DR-4523 Subapplication Scoring

ITEM	SCORE										
1. Does the proposed activity provide (or plan to provide) direct risk reduction benefits to disadvantaged/vulnerable communities and populations?	<p><i>(This question to be filled by HM staff based on SVI review).</i></p> <p><b>No (0 points)</b>      <b>Yes (20 points)</b></p> <p style="text-align: center;"><input type="checkbox"/>                      <input type="checkbox"/></p>										
2. Does the proposed activity address climate change adaptation and resiliency with consideration of future impacts and risks associated with climate change?	<table style="width: 100%; border: none;"> <tr> <td style="text-align: center; padding: 5px;">Strongly Disagree (0 pts)</td> <td style="text-align: center; padding: 5px;">Disagree (2 pts)</td> <td style="text-align: center; padding: 5px;">Neutral (5 pts)</td> <td style="text-align: center; padding: 5px;">Agree (11 pts)</td> <td style="text-align: center; padding: 5px;">Strongly Agree (15 pts)</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table> <p style="text-align: center; color: #808080; font-size: small;">Click or tap here to enter text.</p>	Strongly Disagree (0 pts)	Disagree (2 pts)	Neutral (5 pts)	Agree (11 pts)	Strongly Agree (15 pts)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Strongly Disagree (0 pts)	Disagree (2 pts)	Neutral (5 pts)	Agree (11 pts)	Strongly Agree (15 pts)							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							
3. Does the proposed activity protect, mitigate, or assess risk to critical infrastructure, utilities and/or repetitive loss structures?											
3.1 Does the proposed activity protect, mitigate, or assess risk to critical infrastructure?	<table style="width: 100%; border: none;"> <tr> <td style="text-align: center; padding: 5px;">Not at All (0 pts)</td> <td style="text-align: center; padding: 5px;">Partially (2 pts)</td> <td style="text-align: center; padding: 5px;">Entirely (5 pts)</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table> <p style="text-align: center; color: #808080; font-size: small;">Click or tap here to enter text.</p>	Not at All (0 pts)	Partially (2 pts)	Entirely (5 pts)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Not at All (0 pts)	Partially (2 pts)	Entirely (5 pts)									
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									
3.2 Does the proposed activity protect, mitigate, or assess risk to utilities?	<table style="width: 100%; border: none;"> <tr> <td style="text-align: center; padding: 5px;">Not at All (0 pts)</td> <td style="text-align: center; padding: 5px;">Partially (2 pts)</td> <td style="text-align: center; padding: 5px;">Entirely (5 pts)</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table> <p style="text-align: center; color: #808080; font-size: small;">Click or tap here to enter text.</p>	Not at All (0 pts)	Partially (2 pts)	Entirely (5 pts)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Not at All (0 pts)	Partially (2 pts)	Entirely (5 pts)									
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									
3.3 Does the proposed activity protect, mitigate, or assess risk to repetitive loss structures (RL)?	<table style="width: 100%; border: none;"> <tr> <td style="text-align: center; padding: 5px;">No RL (0 pts)</td> <td style="text-align: center; padding: 5px;">1 RL (1 pt)</td> <td style="text-align: center; padding: 5px;">2-10 RL (3 pts)</td> <td style="text-align: center; padding: 5px;">&gt;10 (5 pts)</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table> <p style="text-align: center; color: #808080; font-size: small;">Click or tap here to enter text.</p>	No RL (0 pts)	1 RL (1 pt)	2-10 RL (3 pts)	>10 (5 pts)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
No RL (0 pts)	1 RL (1 pt)	2-10 RL (3 pts)	>10 (5 pts)								
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>								
4. Does the proposed activity mitigate (or plan to mitigate) an imminently dangerous problem that would pose	<p><b>No (0 points)</b>      <b>Yes (5 points)</b></p> <p style="text-align: center;"><input type="checkbox"/>                      <input type="checkbox"/></p>										





## Hazard Mitigation Grant Program DR-4523 Subapplication Scoring

<p>a significant risk to public health and safety if left unresolved?</p>			
<p>5. Does the budget include a detailed breakdown of all costs associated with the proposed activity?</p>	<p>Not at All (0 pts) <input type="checkbox"/></p>	<p>Partially (1 pt) <input type="checkbox"/></p>	<p>Entirely (2 pts) <input type="checkbox"/></p>
<p>6. Is the proposed activity timeframe clear and realistic, with a breakdown of activities and milestones to demonstrate the ability to complete the work within the established timeframe?</p>	<p>Not at All (0 pts) <input type="checkbox"/></p>	<p>Partially (1 pt) <input type="checkbox"/></p>	<p>Entirely (2 pts) <input type="checkbox"/></p>
<p>7. Was the proposed mitigation measure previously approved and funded by FEMA and subsequently cancelled? <i>(Unapproved Time Extension or Cost Increase)</i></p>	<p><i>(This question to be filled by HM staff)</i></p> <p><b>No</b> (0 points)      <b>Yes</b> (5 points)  <input type="checkbox"/>                      <input type="checkbox"/></p>		
<p>8. Was this subapplication previously submitted to FEMA, deemed eligible, yet remains unfunded due to the lack of availability of funding?</p>	<p><i>(This question to be filled by HM staff)</i></p> <p><b>No</b> (0 points)      <b>Yes</b> (5 points)  <input type="checkbox"/>                      <input type="checkbox"/></p>		



## Hazard Mitigation Grant Program DR-4523 Subapplication Scoring

SUBAPPLICATION SCORING			
Item	Additional Comments	Maximum Score Possible	Total Score
1		20	
2		15	
3.1		5	
3.2		5	
3.3		5	
<b>Total:</b>		<b>50</b>	
<b>Additional Scoring</b>			
4		5	
5		2	
6		2	
7		5	
8		5	
<b>Total:</b>		<b>19</b>	