

**MAS 9 Risk Communication and Project Engagement  
Related to EMF -2018-CA-00005  
(Period of January 1, 2019 to June 30, 2020)**

These activities are associated with the

**Carson River Watershed  
REGIONAL FLOODPLAIN MANAGEMENT PLAN  
And the  
NevadaFloods.org flood awareness campaign of the  
Nevada Floodplain Manager's office, Division of Water  
Resources  
Submitted for:**

**Carson River Watershed**

**October 16,2020**

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# Carson River Regional Floodplain Management – EMF-CA-2018-0005 Flood Awareness Program Report

This report outlines regional floodplain management actions and lists the activities in the Community Outreach and Flood Awareness efforts conducted in Carson River Watershed which occurred during the period of January 1, 2019 to June 30, 2020. In addition to requirements of MAS 9 (EMF-2018-CA-0005), the Carson River Watershed Regional Floodplain Management Plan informs and guides CWSD's floodplain management activities as part of the Integrated Watershed Management Process.

## 1.0 Background

In 2008, the [Regional FMP](#) and the [2013 Regional FMP Supplemental Update](#) were formally adopted by the boards of the Carson Water Subconservancy District, Douglas, Carson City, Lyon, and Churchill Counties in Nevada, and Alpine County in California to provide a consistent approach to planning efforts, programs and projects, help protect community members from flooding hazards, and conserve floodplain lands. The [2018 Regional FMP](#) was revised in 2017 – 2018 and adopted by Storey County in addition to those counties which also adopted the two prior versions. This document includes the [2018 Discovery Report for the Carson River Watershed](#). The 2018 Revision process and document are discussed in Sections 3.0 3.3 .

### ***Federal Emergency Management Agency (FEMA) Cooperating Technical Partner***

In 2005, CWSD became a [Cooperative Technical Partner \(CTP\) with FEMA](#). Through this program CWSD can apply for funding from FEMA to conduct floodplain mapping, flood studies, mitigation planning, public outreach, and other projects that reduce the flood risk in the Carson River Watershed. Since 2005, CWSD has received nine CTP funding grants from FEMA. Each grant application includes a Mapping Activity Statement (MAS) which identifies the various flood studies and activities that will be accomplished (See specifics in Section 3.3 and 3.5 below).

### ***Federal Emergency Management Agency (FEMA) Risk MAP Program***

In 2011, CWSD and various federal, state, and county government bodies signed the first [FEMA Region IX Risk MAP Charter](#) agreement formalizing collaborative efforts for flood management in the Carson River Watershed. In October 2016, Storey County became a signatory to the Charter. This collaboration enhances hazard mitigation plans, improves community resiliency after flooding, protects beneficial functions of floodplains, and raises awareness about local flood risks. A RiskMap Charter meeting was held February 5, 2020, to discuss and identify projects for CWSD to pursue for FEMA Mapping Activity Statement (MAS) 11 funding. The agenda and meeting notes are available at CWSD.

## 2.0 Carson River Coalition Stakeholder Process

### *Carson River Coalition Meetings*

The Carson River Coalition (CRC) is a bi-state, multi-county stakeholder group, hosted by the Carson Water Subconservancy District (CWSD) and funded by CWSD and the Nevada Division of Environmental Protection (NDEP). Planners, engineers, floodplain managers, and other staff members from all watershed counties participate in this group. In addition, employees from many other local; state and federal entities; and non-governmental agencies such as conservation districts, State Floodplain Manager, State Division of Emergency Management, FEMA, US Bureau of Reclamation, National Weather Service and The Nature Conservancy participate in CRC working groups with private citizens. CRC meetings are open to the public; meeting information is available at [www.cwsd.org](http://www.cwsd.org).

## 3.0 Community Rating System Activities

The [2018 Regional FMP](#) divides implementation strategies into eight categories and provides suggested actions for each category. Table 3.1 correlates suggested actions in the 2018 Regional FMP to FEMA’s Community Rating System categories (Table 3.2). This section outlines CRS work completed by CWSD between July 1, 2019- June 30, 2020.

Table 3.1 Correlation of CRS Categories to Suggested Actions of 2018 Regional FMP

CRS Categories	2018 Regional Floodplain Management Plan Suggested Actions
310, 320, 350, 410, 420 , 450 510, 520, 530	Protect Natural Floodplain Function and Values
430	Set Higher Regulatory Standards
410, 440	Collect Flood Data Information and Maintenance
410, 430, 440, 510	Balance Channel Migration and Bank Erosion Monitoring
330	Increase Floodplain and Flood Hazard Outreach and Education
510, 540	Reduce Infrastructure Impact
440, 530	Map/Study Alluvial Fans
320, 450	Minimize Stormwater Impacts

Table 3.2 CRS activities outlined in CRS Coordinator’s Manual (2017)

CRS Category	ACTIVITY
300 Public Information Activities	310 Elevation Certificates 320 Map Information 330 Outreach Projects 340 Hazard Disclosure 350 Flood Protection Information 360 Flood Protection Assistance 370 Flood Insurance Promotion
400 Mapping and Regulatory Activities	410 Additional Flood Data 420 Open Space Preservation 430 Higher Regulatory Standards 440 Flood Data Maintenance 450 Stormwater Management
500 Flood Damage Reduction Activities	510 Floodplain Management Planning 520 Acquisition and Relocation 530 Flood Protection 540 Drainage System Maintenance
600 Flood Preparedness Activities	610 Flood Warning Program 620 Levee Safety 630 Dam Safety

The following sections provide an overview of CWSD’s work conducted for each CRS category during this reporting period.

**300 - Public Information Activities**

**310 Elevation Certificate Activities:** *The objective of this activity is to maintain correct Federal Emergency Management Agency (FEMA) Elevation Certificates and other needed certifications for new and substantially improved buildings in Special Flood Hazard Area (SFHA).*

*CWSD Progress during this period on Elevation Certificates Activities include:*

- While CWSD staff does not specifically address Elevations Certificates in our public interactions, but we refer questions to the appropriate city or county staff during outreach events.
- This activity is suggested action Carson River F

**320 Map Information Activities:** *The objective of this activity is to provide inquirers with information about the local flood hazard and flood-prone areas that need special protection because of their natural functions.*

*CWSD Progress during this period on Map Information Activities include:*

- North Dayton Valley Area Drainage Master Plan outreach was conducted in Lyon County and Storey County. This project began in September 2017 and concluded in August 2019. This project included public outreach events at beginning and end of project which allowed community residents to review maps and provide data and photos to validate mapping results. This project was presented to

community officials with alternatives to mitigate flood hazards. This plan was added to Lyon County’s Hazard Mitigation Plan.

- South Dayton Valley Area Drainage Master Plan outreach was conducted in Lyon County and Storey County. This project began in October 2019 and concluded in August 2020. This project included public outreach events at beginning and end of project which allowed community residents to review maps and provide data and photos to validate mapping results. The final public outreach event was held virtually on July 29, 2020. This project was also presented to community officials with alternatives to mitigate flood hazards.

Table 3.1 Map Information Outreach

**CORONAVIRUS PANDEMIC: The following highlighted events were planned but were cancelled due to school / work stay at home order**

Dayton Valley Area Drainage Master Plans Project Outreach - CWSD Staff		
DATE (S)	LOCATION	EVENT/OUTREACH EFFORT
8/12/2019	Dayton Community Center	South Dayton Valley Area Drainage Master Plan Meeting
8/13/2019	Dayton Community Center	North Dayton Valley Area Drainage Master Plan Results Meeting
8/14/2019	Storey County Community Center	North Dayton Valley Area Drainage Master Plan Results Meeting
8/15/2019	Yerington, NV	Present to Lyon County Board: Dayton Valley Area Drainage Master Plan
8/20/2019	Virginia City, NV	Present to Storey County Board: Dayton Valley Area Drainage Master Plan
5/1/2020	Dayton, NV	Planned to present South Dayton ADMP delayed due to Covid; delayed until July 2020

**330 Outreach Project Activities:** *The objective of this activity is to provide the public with information needed to increase flood hazard awareness and to motivate actions to reduce flood damage, encourage flood insurance coverage, and protect the natural functions of floodplains.*

*CWSD Progress during this period on Outreach Project Activities include:*

- CWSD utilized FEMA funding to assist counties in Nevada Flood Awareness Outreach Events and Flood Awareness Week (FAW) held November 16-22, 2019. CWSD maintains a webpage with [flood preparedness information for watershed residents](#). CWSD staff met periodically between July 1, 2019- June 30, 2020 with the FAW planning committee. Led by Nevada’s Floodplain Management office,

activities included state and county proclamations, specific events, billboard advertisements and PSAs. Douglas County hosted a FAW event.

- CWSD staff highlights [NevadaFloods.org](http://NevadaFloods.org) website at its outreach events. County and State Proclamations can be found at this website. CWSD attended monthly planning meetings led by the Nevada Division of Water Resource's Floodplain Manager and worked in the Carson River to support Flood Awareness campaign. Mas 8 FEMA grant supported additional advertising with radio spots, electronic signs.
- CWSD school flood awareness program was well underway until schools and business were closed and Nevada residents were asked to stay home because of the Coronavirus. Elements include:
  - Floodplain model is utilized to demonstrate to adults and students how floodplains work, flooding, risk, and the importance of floodplain protection.
  - "I Am Ready" flood preparedness activity books provided by US Army Corps of Engineers. These books are used for 2 purposes – teachers provide a count of how many they need, so it is easy to track participant numbers. These books are passed out the week prior to flood awareness event. Students demonstrate how they acted on their knowledge when they return with their emergency information page filled in. As a reward , they receive program swag with nevadafloods.org logo – yoyo's, Great Basin wildflower seeds, flood awareness bag, etc..
  - A relay race game was developed to underscore the importance of disaster preparedness. Teams of 4-6 students race across field / gym and select items for a family of four with a dog to grab as they "evacuate" After the race, students brainstorm about items they may have forgotten.
  - Events for this program were set to occur from 7/1/2019 – 6/30/2020. CWSD and/or contractor participated in events in all watershed counties. River Wranglers was able to reach approximately 714 students. Once the pandemic closed schools, it is estimated that approximately 845 students missed out on flood awareness outreach. This estimate is based on last year's attendance. Table 3.2 lists these events.

Table 3.2 School Outreach Events

School Outreach		
CORONAVIRUS PANDEMIC: The following highlighted events were planned but were cancelled due to school / work stay at home order		
DATE (S)	LOCATION	EVENT/OUTREACH EFFORT
<b>Carson City School Outreach</b>		
11/14/2019	Fremont Elementary, Carson City	SNJ STEM night
11/21/2019	Seeliger Elementary, Carson City	SNJ STEM night
2/11/2020	Empire Elementary School	Flood Awareness and Safety Preparedness
3/12/2020	Mark Twain Elementary @ Fuji Park	Flood Awareness and Safety Preparedness
3/24/2020	Carson Middle / Eagle Valley STEM night	Flood Awareness and Safety Preparedness
5/5/2020	Carson Valley Middle School Flood Event	Flood Awareness and Safety Preparedness
<b>Churchill County School Outreach</b>		
8/23/2019	Cantaloupe Festival	Flood Awareness and Safety
8/28/2020	Cantaloupe Festival, Fallon	Flood Awareness and Safety Preparedness
<b>Douglas County School Outreach</b>		
9/12/2019	Gardnerville Elementary, Douglas County	Sierra Nevada Journeys (SNJ) STEM night
11/26/2019	Pau-Wa-Lu Middle School	Flood Awareness and Safety Preparedness
3/13/2020	Minden Elementary @ River Fork Ranch	Flood Awareness and Safety Preparedness
9/1/2020	Silver Stage Fall Festival	Flood Awareness and Safety Preparedness
<b>Lyon County School Outreach</b>		
12/4/2019	Silver Stage Middle School	Flood Awareness and Safety Preparedness
<b>Storey County School Outreach</b>		
5/1/2020	Hugh Gallagher Elementary	Flood Awareness and Safety Preparedness

**340 Hazard Disclosure Activities:** *The objective of this activity is to disclose a property’s potential flood hazard to prospective buyers before the lender notifies them of the need for flood insurance.*

CWSD staff coordinates with city/county staff at public meetings to provide hazard maps of its flood projects to residents in the Carson River Watershed. CWSD has completed many projects to identify flood hazards. At these public meetings, community residents can ask questions, discuss their property with project engineers, resource professionals, and city/county staff to better understand their specific flood hazards. Messaging directs watershed residents to NevadaFloods.org to discover their flood risk and determine whether or not they are required to purchase flood insurance. Residents are informed of where they can find specific hazard mitigation maps on [CWSD's website](#). Staff also underscores the affordability of flood insurance for buildings not in SFHAs.

**350 Flood Protection Information Activities:** *The objective of this activity is to provide the public with information about flood protection that is more detailed than that provided through outreach projects.*

*CWSD Progress during this period on Flood Protection Information Activities include:*

- Public and Project outreach events provided Flood Protection Information to residents as listed in Table 3.3. These events include brochures, maps, and activity books to give detailed information about flood protection that is more detailed. Approximately 328 contacts were made prior to shut down. However, after several large events were cancelled during the spring and summer of 2020, it is estimated the opportunity to speak to approximately 1,139 people was missed.

Table 3.3 Carson River Watershed Public and Project Outreach Events

Public Outreach		
CORONAVIRUS PANDEMIC: The following highlighted events were planned but were cancelled due to school / work stay at home order		
DATE (S)	LOCATION	EVENT/OUTREACH EFFORT
<b>Carson City Public Outreach Events</b>		
7/28/2019	Carson City, NV	Ag Safety Day at Carson City Fair
8/6/2019	Carson City, NV	Carson City National Night Out
6/26-28/2020	Epic Ride Bike Race	Flood Awareness and Safety Preparedness
<b>Churchill County Public Outreach Events</b>		
4/18/2020	Fallon Shoshone Paiute Tribe Earth Day	Flood Awareness and Safety Preparedness
<b>Lyon County Public Outreach Events</b>		
8/10/2019	Dayton, NV	Our Town, Our Park Event
5/30/2020	Oodles of Noodles	Flood Awareness and Safety Preparedness
<b>Douglas County Public Outreach Events</b>		
5/11/2019	Gardnerville, NV	Douglas Safety Day at Lampe Park
10/30/2019	Douglas County, NV	Flood Awareness Outreach Event at Douglas County Public Works Open House
11/19/2019	Gardnerville, NV	Douglas County Flood Awareness Event
5/9/2020	Douglas County Safety Day	Flood Awareness and Safety Preparedness



5/9/2020	Earth Day - Washoe Tribe of Nevada & California	Flood Awareness and Safety Preparedness
<b>Storey County Public Outreach Events</b>		
8/6/2019	Virginia City, NV	Storey County National Night Out
9/5/2019	Storey County, NV	Storey County Planning Commission

- CWSD’s website provides link to the Floodplain Management Plan and its updates, on [www.cwsd.org](http://www.cwsd.org).
- County floodplain and emergency manager information is updated annually and is available on the Flood Awareness section on [www.cwsd.org](http://www.cwsd.org).

**360 Flood Protection Assistance:** *The objective is to provide one-on-one help to people who are interested in protecting their property from flooding.*

*CWSD Progress during this period on Flood Protection Assistance Activities include:*

- CWSD staff works with people who enquire about how they can protect their property from flooding in flood outreach efforts.
- CWSD staff also refers property owners with specific questions to appropriate city or county staff member.

**370 Flood Insurance Promotion:** *The objective of this activity is to improve flood insurance coverage in the community.*

*CWSD Progress during this period on Flood Insurance Promotion Activities include:*

- CWSD staff coordinates with staff from counties, state and FEMA at various outreach events listed in sections 320, 330 and 340 to include flood insurance promotion. Flood awareness week events include FEMA flood insurance specialists so residents can ask specific questions. Common themes of this messaging include why it may be prudent to purchase even if one is not required; check out [Nevadafloods.org](http://Nevadafloods.org) to know your flood risk; and money spent on flood insurance (aka mitigation) reduces disaster costs.

#### **400 Mapping and Regulatory Activities**

**410 Flood Hazard Mapping Activities:** *The objective of this activity is to improve the quality of the mapping that is used to identify and regulate development as risk from flood hazards.*

*CWSD Progress during this period on Flood Hazard Mapping Activities include:*

- There are approximately 41 CTP projects CWSD has either completed or are in process. For these projects, residents are informed of where they can find specific hazard mitigation maps on [CWSD’s website](#). CWSD staff and its website also refers residents to [Nevada Floods website](#) and the [FEMA Map Service Center](#).
- North Dayton Valley Area Drainage Master Plan mapped alluvial fan flood hazards in Lyon County and Storey County. This project began in September 2017 and concluded in August 2019. This project was presented to community officials with alternatives to mitigate flood hazards. This plan was added to Lyon County’s Hazard Mitigation Plan.

- North Carson City Drainage Study mapped alluvial fan flood hazards in Carson City county. This project began in November 2018 and concluded in August 2020. This project was presented to community officials with alternatives to mitigate flood hazards. This plan will be added to Carson City's Hazard Mitigation Plan.
- South Dayton Valley Area Drainage Master Plan mapped alluvial fan flood hazards in Lyon County. This project began in October 2019 and concluded in August 2020. This project was also presented to community officials with alternatives to mitigate flood hazards. This plan will be added to Lyon County's Hazard Mitigation Plan.
- Ruhenstroth Area Drainage Master Plan is mapping alluvial fan flood hazards in Douglas County. This project began in December 2018 and will conclude in August 2020. This project was also presented to community officials with alternatives to mitigate flood hazards. This plan will be added to Douglas County's Hazard Mitigation Plan.
- West Carson City Drainage Study is mapping alluvial fan flood hazards in Carson City county. This project began in November 2019 and will conclude in August 2021. This project will be presented to community officials with alternatives to mitigate flood hazards. This plan will be added to Carson City's Hazard Mitigation Plan.

**420 Open Space Preservation:** *The objectives of this activity are to:*

- 1) *Prevent flood damage by keeping flood-prone lands free of development, and*
- 2) *Protect and enhance the natural functions of floodplains.*

*CWSD Progress during this period for Open Space Preservation efforts include:*

- Open space preservation is #1 suggested action in the Carson River Management Floodplain Management Plan. CWSD also works to support funding opportunities to protect open floodplain lands through conservation easements, the Southern Nevada Public Lands Management Act, etc.
- The *Living River Approach* was highlighted during the adoption process. The *Living River Approach* in the [2018 Regional FMP](#) supports river and floodplain management which recognizes the importance of balancing the natural floodplain form and function of the river. During adoption presentations, it was stressed that \$1 in mitigation saves communities \$6 in disaster costs.<sup>1</sup>
- CWSD helped fund the [Alpine Watershed Group](#) (AWG) in the Upper Carson River Watershed. AWG works to preserve and enhance the natural system functions in Alpine County's watersheds for future generations through collaboration, education, and proactively implementing stewardship projects.

**430 Higher Regulatory Standards:** *The objective of this activity is to credit regulations to protect existing and future development and natural floodplain functions that exceed the minimum criteria of the National Flood Insurance Program (NFIP).*

*CWSD Progress during this period on Higher Regulatory Standards Activities include:*

- In 2019, final ordinances were finalized per city or county's direction to incorporate the final model update protocol, any specific mitigation measures, and different (higher) city or county regulatory standards.
- Carson City and Douglas County's floodplain ordinances are still in review by the counties.

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<sup>1</sup> <https://www.nibs.org/news/381874/National-Institute-of-Building-Sciences-Issues-New-Report-on- the-Value-of-Mitigation.htm>  
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- Lyon County's floodplain ordinance was adopted in September 2019.
- Alpine County adoption process will take longer since California requires it goes through CEQA review before final adoption. However, county staff has worked to inform planning commission, residents, and county board of supervisors of the benefits of this plan.
- Storey County used the same language template and chose to fund an update of their floodplain ordinances in conjunction with the Project.

**440 Flood Data Maintenance:** *The objective of this activity is to make community floodplain data more accessible, current, useful, and/or accurate so that the information contributes to the improvement of local regulations, insurance rating, planning, disclosure, and property appraisals.*

*CWSD Progress during this period on Flood Data Maintenance Activities include:*

CWSD has a website pages which directs watershed residents [to community floodplain data](#) with links to [NevadaFloods.org](#) and the [FEMA Map Service Center](#).

**450 Stormwater Management:** *The objective of this activity is to prevent future development from increasing flood hazards to existing development, to protecting existing hydrologic functions within the watershed, and to maintain and improve water quality.*

*CWSD Progress during this period on Stormwater Management Activities include:*

- CWSD promotes Low Impact Development (LID) Use in the Carson River Watershed. In 2018, CWSD received Clean Water 208 funding. In discussion with the various counties, it was decided the funding should be utilized to update LID ordinances throughout the watershed. In February 2018, CWSD hired a consultant to update LID ordinances. This ongoing project examined existing LID language and will update LID ordinance language in Carson River Watershed communities. Although funded from Nevada Division of Environmental Protection, this language will sync with new floodplain ordinances with a focus of reducing stormwater. LID projects which capture polluted stormwater also benefit a community's floodplain management program. Having LID friendly ordinances will help with flood attenuation, water quality and water recharge. CWSD is working with Carson City to make LID a mandatory part of their codes, and with Douglas and Lyon Counties to incentivize the implementation of LID.
- Several area drainage studies (refer to section 410) are being conducted in the Carson River Watershed. These studies assist city/county staff and board members by informing decisions by identifying areas likely to flood, considering infrastructure, mapping flooding, and providing alternative solutions to reduce alluvial and stormwater flooding.
- Carson City: The Saliman/Voltaire LOMR was submitted to FEMA in July 2019 and provides flood data to the county's floodplain manager to plan for stormwater effects in South Carson City.

## **500 Flood Damage Reduction Activities**

**510 Floodplain Management Planning:** *The objective of this activity is to credit the overall strategy of programs, projects, and measures that will reduce the adverse impact of the hazard on the community and help meet other community needs.*

*CWSD Progress during this period on Floodplain Management Planning activities include:*

### River Corridor/Floodplain Management Working Group

The River Corridor Working Group was renamed the Floodplain Management Working Group and is a sub-committee of the CRC with a focus on regional floodplain management issues. This group meets on a regular basis. This group met 8/20/2019, 12/19/2020, and 5/28/2020 to hear about floodplain projects. The group also discussed implementation of river rehabilitation and flood projects funded by other state and federal entities. [Agendas and Meeting notes](#) are available on our website.

The [2018 Regional FMP](#) acts as the guidance document to implement floodplain management strategies and objectives to mitigate flood hazard impacts and protect watershed resources in the Carson River Watershed. The Regional FMP also identifies responsible parties and funding sources for implementation.

The regional plan objectives include the following:

- Manage economic development without sacrificing floodplain and river form and function.
- Ensure public safety upstream and downstream.
- Protect property rights while conserving natural resources.
- Protect and improve wildlife habitat and water quality.
- Provide and maintain river continuity and connection of the river to its floodplain.
- Promote conservation of lands within the river corridor.

#### Risk MAP Discovery

In 2011, CWSD working closely with local watershed communities staff members, conducted the Risk MAP Discovery process to better understand the local flood risk, mitigation efforts, etc., and to spur watershed-wide discussions about increasing the area's resilience after flooding. The [FEMA RiskMAP Discovery Report](#) was updated in 2018 and is part of the [2018 Regional FMP](#). This Regional FMP will be updated in 2023.

Please contact CWSD staff with any questions or comments regarding the above report:

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