Risk Communication and Project Engagement
FEMA Mapping Activity Statements 12
(Period of July 1, 2023, to June 30, 2024)

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 CRS Communities
Carson City, Nevada
Douglas County, Nevada
Storey County, Nevada

September 30th, 2024
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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 July 1, 2023, to June 30, 2024. In addition to meeting requirements of mapping activities statements (MAS) 12, the Carson River Watershed Regional Floodplain Management Plan (FMP) informs and guides Carson Water Subconservancy District's (CWSD) floodplain management activities as part of the Integrated Watershed Management Process.

1.0 Background

In 2008, the 2018 Carson River Watershed Regional Floodplain Management Plan (CRFMP) was formally adopted by the boards of the Carson Water Subconservancy District, Douglas, Carson City, Lyon, Storey, and Churchill Counties in Nevada, and Alpine County, California, to provide a consistent approach to planning efforts, programs and projects, help protect community members from flooding hazards, and conserve floodplain lands. CWSD staff updated the plan in 2018 and are currently in the process of updating the plan again. Storey County adopted the CRFMP for the first time; therefore, all the counties in the Watershed have adopted this plan. Section 3.0 describes the 2018 Revision process and document updates. The plan is currently being updated.

Federal Emergency Management Agency Cooperating Technical Partner

In 2005, CWSD became a Cooperative Technical Partner (CTP) with Federal Emergency Management Agency (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 flood risk in the Carson River Watershed. Since 2005, CWSD has received thirteen CTP funding grants from FEMA. Each grant application includes activities to accomplish in a Mapping Activity Statement (MAS) or a Communication and Mitigation Strategies (COMS), The MAS or COMs are documents that identify various flood or hazard mitigation studies and risk communication and outreach (See specifics in Section 3.3 and 3.5 below).

Nevada Division of Emergency Management

In 2020, CWSD was listed as a jurisdiction in Storey County's Hazards Mitigation Plan and was approved by FEMA. Therefore, CWSD is eligible to receive hazard mitigation grants. Since then, CWSD received a $293,700 to create a 30 Year Regional Water Plan to mitigate effects of drought and climate variability from FEMA's Building Resilient Infrastructure Communities (BRIC) grant through Neveda Division of Emergency Management (NDEM). In 2024, CWSD received another BRIC grant of $128,727 grant to further design of drainage infrastructure in the North Dayton Valley portion of Storey County from (NDEM). CWSD will work with all watershed counties in the future to pursue similar projects with regional benefits.

FEMA Risk MAP Program

In 2011, CWSD and various federal, state, and county government bodies signed the first FEMA Region IX Risk MAP (Mapping, Assessment, and Planning) 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 resilience after flooding, protects beneficial functions of floodplains, and raises awareness about local flood risks. After being informed FEMA Region 9 would not be funding FY 2023, CWSD did not hold a Risk MAP Charter meeting in 2023. However, CWSD still kept in contact with county staff to identify projects for CWSD to pursue for the next FEMA funding round.

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 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 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. CRC meetings are open to the public. Meeting information is available at https://www.cwsd.org/crc-meetings/ at the bottom of the webpage.

Carson River Watershed Literacy Campaign

With Environmental Protection Agency (EPA) 319 funding, CWSD has spearheaded a watershed literacy campaign. Over the past five years, this campaign has installed watershed boundary signs on Nevada highways; updated the online Carson River Watershed interactive map website; created a Spanish version of the watershed online interactive map. Throughout 2023-2024, CWSD promoted 12 videos for the "I Am Carson River Watershed" campaign (https://iamcarsonriver.org/). These videos focus on water quality, but they also lay a foundation to be able to discuss watersheds, floodplains, and the value of open space. They demonstrate areas of the watershed and provide an understanding of where they live in the world. They inspire residents to look up and view the natural world around them. Watershed moments are short videos like "Make your Yard a Sponge" that encourage residents to adopt actions that improve watershed health. CWSD provided campaign resources for counties to share on their websites. Residents are urged to take the watershed pledge at the campaign web page. First, residents select an action they will take to protect watershed health. Next, the resident is provided a short video to learn how to keep our watershed and our waters healthy. Table 2.0 lists the icons and pledge for each activity.

Table 2.0 I Am Carson River Watershed Videos and Pledge Actions			
Icon	**Pledge Action**	**Icon**	**Pledge Action**
	I will pick up my pet's waste in my backyard, neighborhood or on the trail and dispose of it properly.		I will keep oils, salts, grime, and chemicals out of our storm drains and rivers by using a car wash.
	I will capture stormwater on my property and let it soak into the ground instead of sending it down storm drains by creating raingardens, redirecting my down spouts to landscaping and reducing hard surfaces on my property.		I will reduce my chemical use by reading labels properly, using only what's needed, and finding alternative natural pest reduction methods.
	I will promote pollinator habitat by adding pollinator friendly native plants and ornamentals, creating solitary bee hotels, and curbing my pesticide use in my garden and beyond!		I will practice the 5 principles of healthy soil: 1) minimize ground disturbance 2) reducing bare soil 3) building diversity of plants, animals, and insects, 4) keeping living roots in the soil; and 5) Integrating animals: Worms, insects, and livestock where appropriate
	When recreating (camping, hiking, biking, fourwheeling, etc.), I will dispose of any waste (trash, human and pet waste, chemicals) by putting them in the proper receptacles (trash cans, recycling, or sewer dump facility).		I will take my used motor oil to my local auto parts store, garage, or recycling center to prevent contamination of water and soil!
	I will visit 3 new parks, trails or open space areas in the Watershed I've never been to before!		I will dispose of my trash properly because I know a more pristine environment looks nicer but also means a healthier watershed.
	I will practice the Play Clean Go principles: 1) REMOVE plants, animals and mud from my boots, gear, pets, and vehicles 2) CLEAN my gear before entering and leaving the recreation site 3) STAY on designated roads and trails 4) USE CERTIFIED or local firewood and hay; and 5) CLEAN, DRAIN, and DRY my boat to prevent spreading aquatic invasives		I will be a steward and engage in my watershed. I will find fun and meaningful ways to volunteer and foster a healthy Carson River Watershed.

3.0 Community Rating System Activities

The 2018 Carson River Watershed Regional FMP (CRFMP) 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, 2023 - June 30, 2024.

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,	Protect Natural Floodplain Function and Values
410, 420, 450	
510, 520, 530	
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	510 Floodplain Management Planning 520 Acquisition and Relocation 530 Flood Protection

Reduction Activities	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. Please refer to CWSD's 2022 Engagement Plan, Appendix A at the end of this document.

300 - Public Information Activities

310 Elevation Certificate Activities: *This activity's objective maintains correct 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:

- CWSD staff does not address Elevations Certificates in our public interactions, but we refer questions regarding elevation certificates to the appropriate city or county staff.

320 Map Information Activities: *This activity's objective provides information about local flood hazard and flood-prone areas that need special protection because of their natural functions.*

CWSD risk communication and outreach demonstrates the watershed model. During the demonstrations, staff uses plain language to underscore the importance of conserving open space areas to protect because of their natural floodplain functions. During the demonstration, shown in Figure 1, staff tries to touch on the following.

Safety and Hazard Reduction:

- *Recent Projects to Map flood hazards.*
- *Floodplains provide flood storage that reduces flood velocities and peak flows, and sediment buildup.*
- *Floodplains keep communities safe by not allowing structures in the floodplain.*
- *Recreational spaces in the floodplains can temporarily closed during floods.*
- *Safety preparedness and safety actions to take during floods.*

As time allows, other Natural and Beneficial functions of floodplains listed below, are mentioned:

- *Natural Flood and Erosion Control*
- *Groundwater Recharge*
- *Water Quality: Floodplains filter polluted runoff, process organic waste, and curb shifts in water temperatures.*
- *Biological Productivity*
- *Fish and Wildlife Habitat*

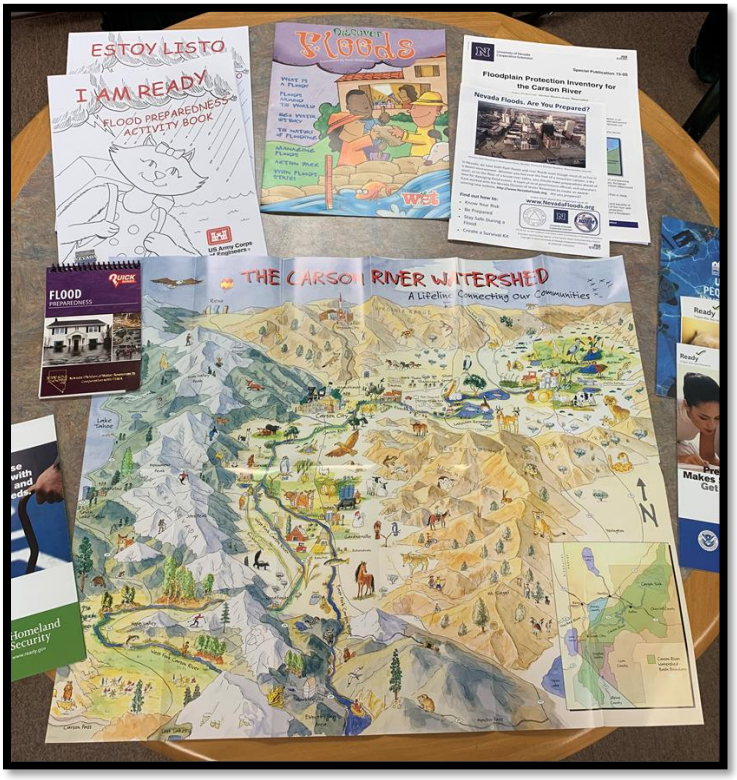
These are Natural and Beneficial Functions of Floodplain are explained in detail in Section 330

Figure 1: Watershed Model Demonstration at Mitch Park Pond in Douglas County

The presenter offers each person a watershed map at the end of their demonstration. The map refers people to CWSD's interactive watershed map. Other handout materials are shown in Figure 2, the paper materials offered include:

- Carson River Watershed Map
- I Am Ready Flood Preparedness Activity provided through USACE Silver Jackets partnership (English and Spanish)
- Nevada Floods. Are you prepared? (English and Spanish)
- Discover Floods (Project Wet)
- Floodplain Protection Inventory of the Carson River
- Various Ready.gov and Quick Series Guides

Figure 2: Printed Outreach Materials



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

<u>Douglas County</u>

- FEMA issued preliminary maps of the Carson Valley Physical Map November 2023. The 90-Day comment period began in April and closed in July without comment. The letter of final determination for this project is expected to be issued in 2025.

- Walker River Watershed Flood Risk Analysis project began in early 2023 and concluded in June 2024. This project assessed flood risk and determined projects to increase resilience in Douglas and Lyon County. This portion of South Douglas County has unincorporated communities in Double Springs, Holbrook Junction, Topaz Lake, and Topaz Ranch Estates and surrounding homes in the Walker River Watershed. The Climate and Social Justice Index lists these areas of the county as underserved.

- Fish Springs and Pinenut Creek Culvert Study determined culvert improvements and refined potential detention sites and designs for a detention basin to reduce flows from Buckeye Creek. An upstream feasibility project delayed this project start until summer of 2023. Work will continue through August 2024. Jeff Weagel, of J-U-B Engineering, will present the results of this project to CWSD's Board of Directors the Douglas County Commissioners in the late summer of 2024.

Carson City

- Southeast Carson City ADMP commenced in April 2022, and a public project kickoff occurred June 2022. This project was completed in December 2023. Mapped alluvial fans and drainage areas in East Carson City help city staff to understand flood hazards and present mitigation alternatives. This project also identified potential mitigation projects to better plan for flooding, infrastructure improvements, and maintenance. The contractor asked residents to share flood experiences and pictures they had experienced. Targeted outreach was successful in the various neighborhoods that staff visited. Geoff Brownell presented the study and mitigation recommendations to CWSD and city board in early 2024.

Storey County

- Virginia City Area Drainage Master Plan commenced in April 2022. In June 2022, a public outreach kickoff informed residents about the project goals and how the county would use the information from the study. Mapped alluvial fans and drainage areas in Virginia City and Six Mile Canyon of Storey County help city staff to understand flood hazards and present mitigation alternatives. This project also identified potential mitigation projects to better plan for flooding, infrastructure improvements, and maintenance. The contractor asked residents to share flood experiences and pictures they had experienced. County staff scheduled a public meeting in October 2023 so residents can hear about the results of the drainage study and potential solutions. Michelle Gamble, Lumos & Associates, will present the study and mitigation recommendations to CWSD and city board in November 2023.

Carson River Watershed

- CWSD continues, through 2024, to support a web interface that allows access to flood information that is not in the regulatory floodplain. This interface is available to county staff and residents and can be accessed at https://gis.mbakerintl.com/carsonwatersubconservancydistrict/. A training is planned in late 2024 for county staff to better utilize the tool.

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.*

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Natural Flood and Erosion Control:

- *Floodplains provide flood storage and room to move that reduces flood velocities, peak flows, and sediment buildup.*

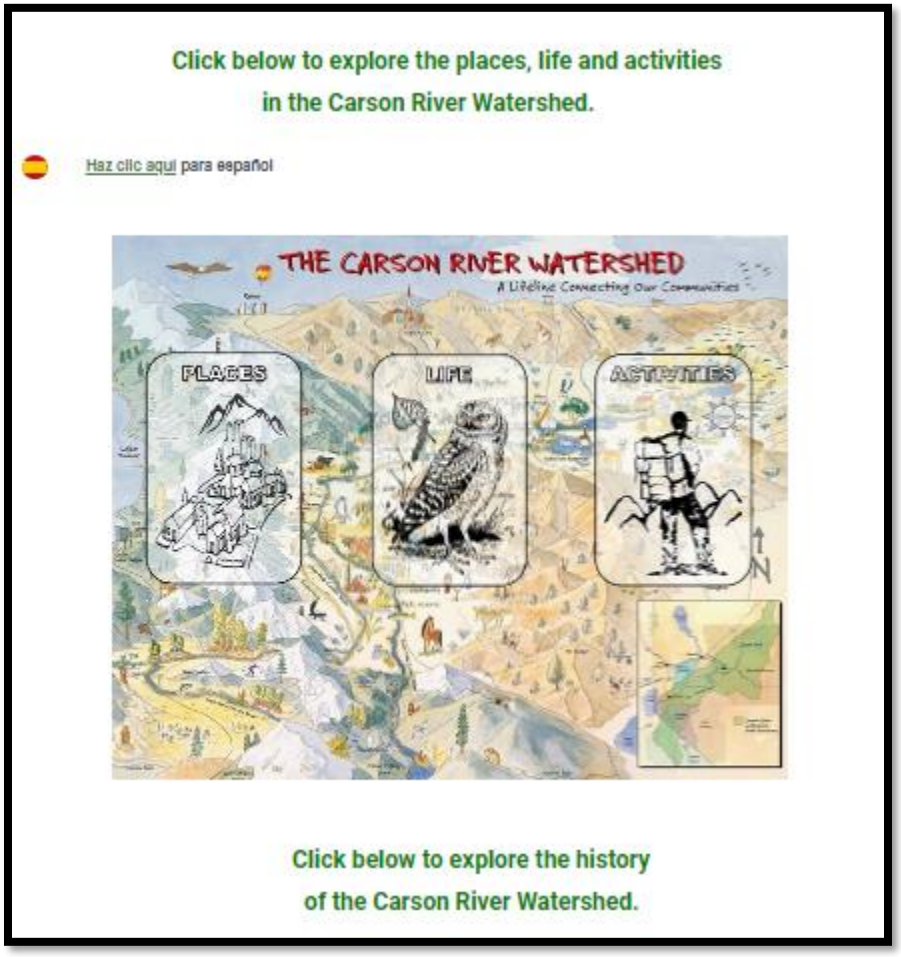
Water Quality:

- *Floodplains filter polluted runoff, process organic waste, and curb shifts in water temperatures.*
- *Groundwater recharge:*
- *Floodplains allow water to slow down and sink into the ground. As water soaks into the ground, it collects in underground spaces called aquifers, so instead of water flowing out to the desert and evaporating, water aquifers keep water in our community. Floodplain plants and soil store incredible amounts of water. So as surface flows decrease, water continues to seep out and keep more water in our river and streams.*

Biological Productivity:

- *Floodplains enrich the soil, so they are ideal for farmers and ranchers to grow plants and animals. Floodplains keep our watershed healthy because they promote biodiversity and stabilize ecosystem frameworks.*
- *Fish and Wildlife Habitat: Floodplains maintain a rich array of plants, bugs, birds, fish, and animals to keep their habitat vital and healthy. Animals love to feed and breed here; the Carson River our watershed is an important bird area and flyway, so whether ducks and geese and other birds live here year-round or migrate through in summer and fall, they can find good places to nest and raise their families. Our watershed is also a place for rare and endangered species such as the Lahontan Cutthroat trout, Sage Grouse, Yosemite Toad, Western Yellow Billed Cuckoo, and the Western Pond turtle. (We refer to the 2017 Carson River Adaptive Stewardship Plan section 3.5, for talking points https://www.cwsd.org/wp-content/uploads/2017/12/Final-CRWASP-2017-Update-Plan-Part-1.pdf)*

Figure 3: Interactive Map screenshot available at cwsd.org.



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- Carson City installed a high-water mark at the Morgan Mill Aquatic Trailhead in East Carson City. Not only is this high-water mark at the aquatic trail, but it is also on the Carson River Recreational trail for bicyclists and hikers. Carson City finished the project late summer 2024, and outreach is planned for flood awareness week, November 10-16,2024. This outreach tool underscores how floodplains and open space work together to reduce flood danger to people and their property. It is also a stark reminder of how high the water can get at this location. The mural includes two interpretive signs. One describes how open space and floodplains work together. It also includes a QR code so residents can find out about their flood risk. The other interpretive sign explains the mining history of the area; these two interpretive panels were paid by Waste Management and the city staff installed them. In collaboration with this high-water mark, the Nevada Silver Jackets team will install two more interpretive panels between Morgan Mill trailhead and Carson River Park.

Table 3.3 Map Information Project Outreach July 1st, 2023 – June 30th, 2024.

Project Meetings & Outreach				
DATE (S)	**PROJECT**	**Location**	**EVENT OUTREACH DESCRIPTION**	**~ Residents /Adults # Reached**
7/18/2023	Pinenut Detention	Douglas County Community Center	Project presentation in public meeting	24
7/19/2023	Pinenut Detention Study	Alpine County Commission Chambers	Project presentation to CWSD Board	19
7/20/2023	Pinenut Detention	Douglas County Commission Chambers	Project presentation to county Board	23
8/16/2023	VC ADMP	Storey County Courthouse Slammer and & County Museum	Project presentation to CWSD Board	14
8/29/2023	Southeast CC ADMP	4 locations in S. Carson City	Met with residents at 4 locations in study area	37
10/12/2023	VC ADMP	Piper's Opera, Virginia City, NV	This meeting will provide project results and mitigation alternatives to residents	13
3/20/2024	Southeast CC ADMP	CWSD Conference Room, Carson City	Project presentation to CWSD Board	15
4/1/2024	Southeast CC ADMP	Carson City Community Center	Project presentation to county Board	35
			Project Outreach Total:	180

- CWSD utilized FEMA funding to assist counties in the Flood Awareness Week Outreach Program (FAW) held in November 2023. CWSD maintains a webpage with flood preparedness information for watershed residents. The FAW planning committee is led by Nevada's Floodplain Management office and met regularly to prepare for November FAW. FAW activities included state and county proclamations and newspaper advertisements.

Table 3.4 : Public Outreach in Carson River Watershed

Public Outreach in the Carson River Watershed		
DATE (S)	**EVENT/OUTREACH EFFORT**	**~ Residents/Adults # Reached**
6/1/2023	Douglas LID Outreach	25
6/17/2023	Sheep Foundations	310
7/20/2023	Washoe Tribal Outreach	10
10/7/2023	CC PW outreach and Source Water	10
8/2/2023	National Night Out	50
8/8/2023	Sheriff's Night out	45
10/26/2023	Boonanza	300
11/14/2023	Douglas County FAW and preliminary release of physical map revision	28
11/15/2023	River Fork Ranch HWM unveiling	10
4/20/2024	Fallon Paiute Shoshone Earth Day (members from Washoe Community attend this event)	75
5/4/2024	FAW- Washoe Tribal Earth Day	33
6/22/2024	Nevada Outdoor Experience	113
Total		706

- CWSD staff highlights NevadaFloods.org website and the FEMA map service center at its outreach events. The NevadaFloods.org website has copies of the county and state proclamations.

- CWSD's flood awareness school program thrived in 2023-2024 school year. FAW school outreach elements include:
    - The Floodplain model demonstrates and defines watersheds and floodplains to educators and students. The presenter also discusses how floodplains work, flooding, risk, and the importance of floodplain protection.
    - "I Am Ready" flood preparedness activity books are provided by US Army Corps of Engineers. Classroom flood preparedness education uses the "I Am Ready" books for two purposes – teachers provide a count of booklets needed, so it is easy to track participant numbers. The flood awareness educator provides coloring books 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 – such as yoyo's, Great Basin wildflower seeds, or a flood awareness bag.

- The flood awareness educator developed a relay race game 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.
- Table 3.5 lists FAW school outreach in each CRS community and Table 3.6 lists FAW outreach throughout the Watershed.

Table 3.5: Summary of school outreach event attendance in CRS communities.

Risk Communication and Outreach in CRS Communities		
County	**~ Educators/ Adults # Reached**	**~ Students Reached**
Douglas County	77	630
Carson City	124	1156
Storey County	2	25

Demonstrating this model is helpful to educate children and their families about learning to respect water when it is flooding.

In March, staff cancelled three events because of the weather these are outlined in Table 3.6a.

Figure 5: Watershed Model demonstration at River Fork Ranch in Douglas County.

Table 3.6: Summary of School Outreach Events

School Outreach Events					
DATE (S)	**Location**	**EVENT OUTREACH DESCRIPTION**	**School**	**~ Educators/ Adults # Reached**	**~ Students Reached**
7/20/2023	Dresslerville Tribal Allotment	Carson Watashemu Day	Washoe Tribal TANF	5	10
6/8/2023	River Fork Ranch	Flood Awareness and Safety preparedness at Conserve Carson River Workday (CCRWD)	Scarselli ES-Douglas	11	71
10/13/2023	River Fork Ranch	Snapshot Day	Douglas County	9	75
10/16/2023	Fuji Park	Flood Awareness Conserve Carson River Workday (CCRWD)	Empire, Carson City	11	99
10/24/2023	Carson City	Ag In the Classroom	Seeliger Elementary School	12	270
12/6/2023	Carson Valley Middle School	Flood Awareness and Safety preparedness	Carson Valley Middle School	4	60
3/28/2024	Dayton	Flood Awareness and Safety preparedness	Hugh Gallagher ES	2	25
4/30/2024	Carson City	Flood Awareness and Safety preparedness	St. Teresa School	2	25
5/3/2024	On-Site	Ag In the Classroom	Pioneer HS	12	72
5/20/2024	On-site	Field Day	Eagle Valley Middle School	20	255
5/21/2024	On-Site	Field Day	Eagle Valley Middle School	11	120
5/22/2024	On-Site	Field Day	Eagle Valley Middle School	18	240
5/29/2024	River Fork Ranch	Field Day	Pinon Hills ES	4	36
5/30/2024	On-Site	Ag In the Classroom	Scarcelli ES	15	250
6/1/2024	River fork Ranch	CCRWD	Scarselli ES-Douglas	8	60
6/4/2024	River Fork Ranch	CCRWD	Minden ES	26	78
6/22/2024	Carson City Shooting Range	Nevada Outdoor Experience	Flood Awareness and Safety Preparedness	38	75
			School Outreach Total:	**206**	**1796**

Table 3.6a Cancelled School Outreach Events

Cancelled School Outreach - River Wranglers and CWSD Staff				
DATE (S)	**School**	**EVENT OUTREACH DESCRIPTION**	**~ Educators/ Adults # Reached**	**~ Students Reached**
1-Mar	Pinon Hills ES	Flood Awareness and Safety preparedness	**0**	**0**

340 Hazard Disclosure Activities: *This activity's objective discloses 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. 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. Residents can search this website to discover their flood risk and find out if they need flood insurance on any given parcel. Staff also underscores the affordability of flood insurance for buildings not in SFHAs

350 Flood Protection Information Activities: *This activity's objective provides 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 has returned to pre-pandemic levels. Refer to Tables 3.3-3.6.
- CWSD's website provides link to the Floodplain Management Plan and its updates, on www.cwsd.org. One of the core tenets of this plan is floodplain conservation.
- CWSD updates County/City floodplain and emergency manager information and is available on the Flood Awareness section on www.cwsd.org.
- Floodplain protection and flooding articles were included in CWSD's newsletter, "Watershed Connections" that is distributed to over 1000 individuals throughout the six counties located in the Carson River watershed.
- CWSD's website and floodplain management plan lists areas targeted to protect because of their natural floodplain functions. UNR Cooperative Extension staff created the 2015 Floodplain Protection Inventory on the Carson River. CWSD's website discusses the need to conserve floodplain lands and refers visitors to the report.
- The website also includes an interactive watershed map, in English and Spanish. It provides site visitors with information about the watershed, and the plants and animals who live in it. Refer to the messages below.

CWSD risk communication and outreach demonstrates the watershed model. During the demonstrations, staff uses plain language to underscore the importance of conserving open space areas to protect because of their natural floodplain functions.

The presenter offers each person a watershed map at the end of their demonstration. The map refers people to CWSD's interactive watershed map. During the demonstration, staff tries to touch on the following:

Safety and Hazard Reduction:

- *Recent Projects to Map flood hazards.*
- *Floodplains provide flood storage that reduces flood velocities and peak flows, and sediment buildup.*
- *Floodplains keep communities safe by not allowing structures in the floodplain.*
- *Recreational spaces in the floodplains can temporarily closed during floods.*
- *Safety preparedness and safety actions to take during floods.*

As time allows, other Natural and Beneficial functions of floodplains listed below, are mentioned:

- *Natural Flood and Erosion Control*
- *Groundwater Recharge*
- *Water Quality: Floodplains filter polluted runoff, process organic waste, and curb shifts in water temperatures.*
- *Biological Productivity*
- *Fish and Wildlife Habitat*

360 Flood Protection Assistance: *This activity's objective provides 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 collaborates with people who inquire 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: *This activity's objective improves 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 messaging themes include:
    - Consider purchasing flood insurance even if the property is outside of a special flood hazard area.
    - Check out Nevadafloods.org to know your flood risk.
    - Money spent on flood insurance (aka mitigation) reduces disaster costs.

400 Mapping and Regulatory Activities

410 Flood Hazard Mapping Activities: *This activity's objective improves 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:

Douglas County

- FEMA issued issue preliminary maps of the Carson Valley Physical Map November 2023. The 90-Day comment period began in April and closed in July without comment. The letter of final determination for this project is expected to be issued in 2025.

- Walker River Watershed Flood Risk Analysis project began in early 2023 and concluded in June 2024. This project assessed flood risk and listed projects to increase resilience in Douglas and Lyon County. This portion of South Douglas County has unincorporated communities in Double Springs, Holbrook Junction, Topaz Lake, and Topaz Ranch Estates and surrounding homes in the Walker River Watershed. The Climate and Social Justice Index lists these areas of the county as underserved.

- Fish Springs and Pinenut Creek Culvert Study determined culvert improvements and refined potential detention sites and designs for a detention basin to reduce flows from Buckeye Creek. An upstream feasibility project delayed this project start until summer of 2023. Work will continue through August 2024. Jeff Weagel, of J-U-B Engineering, will present the results of this project to CWSD's Board of Directors the Douglas County Commissioners in the summer of 2024.

Carson City

- Southeast Carson City ADMP commenced in April 2022, and a public project kickoff occurred June 2022. This project was completed December 2023. Mapped alluvial fans and drainage areas in East Carson City help city staff to understand flood hazards and present mitigation alternatives. This project also identified potential mitigation projects to better plan for flooding, infrastructure improvements, and maintenance. The contractor asked residents to share flood experiences and pictures they had experienced. Targeted outreach was successful in the various neighborhoods that staff visited. Geoff Brownell will present the study and mitigation recommendations to CWSD and city board in early 2024.

Storey County

- Virginia City Area Drainage Master Plan commenced in April 2022. In June 2022, a public outreach kickoff informed residents about the project goals and how the county would use the information from the study. Mapped alluvial fans and drainage areas in Virginia City and Six Mile Canyon of Storey County help city staff to understand flood hazards and present mitigation alternatives. This project also identified potential mitigation

projects to better plan for flooding, infrastructure improvements, and maintenance. The contractor asked residents to share flood experiences and pictures they had experienced. County staff have scheduled a public meeting in October 2023 so residents can hear about the results of the drainage study and potential solutions. Michelle Gamble, Lumos & Associates, will present the study and mitigation recommendations to CWSD and city board in November 2023.

Carson River Watershed

CWSD continues, through 2024, to support a web interface that allows access to flood information that is not in the regulatory floodplain. This interface is available to county staff and residents and can be accessed at https://gis.mbakerintl.com/carsonwatersubconservancydistrict/. A training is planned in late 2024 for county staff to better utilize the tool.

420 Open Space Preservation: *This activity's objective will:*

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:

- Through the Carson River Coalition (CRC) Floodplain Management Group, CWSD works with counties to promote preserving open spaces in the Carson River Watershed. The *Living River Approach,* in CWSD's Regional FMP, recognizes the importance of balancing the natural floodplain form and function of the river by conserving open floodplain lands. All outreach messaging includes a discussion about the open space floodplains in the Carson River Watershed and the value they provide for flood protection, water quality enhancement, and groundwater recharge. The CRC encourages audiences to advocate for open space preservation and funding. This will be included in Carson City's Carson River Master Plan.

- Carson City installed a high-water mark at the Morgan Mill Aquatic Trailhead in East Carson City. Not only is this high-water mark at the aquatic trail, but it is also on the Carson River Recreational trail for bicyclists and hikers. Carson City finished the project late summer 2024, and outreach is planned for flood awareness week, November 10-16,2024. This outreach tool underscores how floodplains and open space work together to reduce flood danger to people and their property. It is also a stark reminder of how high the water can get at this location. The mural includes two interpretive signs. One describes how open space and floodplains work together. It also includes a QR code so residents can find out about their flood risk. The other interpretive sign explains the mining history of the area; these two interpretive panels were paid by Waste Management and the city installed them at their own cost. In collaboration with this high-water mark, the Nevada Silver Jackets team will install 2 more interpretive panels between Morgan Mill trailhead and Carson River Park.

Figure 4: Morgan Mill High Water Mark Installation.

430 Higher Regulatory Standards: *This activity's objective credits community for 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:

- CWSD is working collaboratively with City or County planners and floodplain managers to update local flood regulations.
- Staff presented draft ordinances for adoption in Douglas County. The Douglas County Board of Commissioners adopted the updated floodplain ordinance on September 7, 2023.
- Douglas County adopted a Stormwater Master Plan. CWSD staff spoke in support of this plan when it was presented to the county commissioners when it was presented for adoption. The purpose of the plan is described in its executive summary, "This County-wide Stormwater Master Plan was developed to assist the County in meeting goals and policies to maintain safe and effective infrastructure to protect life and property, meet regulatory water quality mandates, and identify projects and programs necessary to improve, operate, and maintain facilities within Douglas County."
- City staff presented Carson City's floodplain ordinances to the board for adoption in October 2023.

- 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: *This activity's objective makes 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 page which directs watershed residents to community floodplain data with links to NevadaFloods.org and the FEMA Map Service Center.

- CWSD continues, through 2024, to support a web interface that allows access to flood information that is not in the regulatory floodplain. This interface is available to county staff and residents and can be accessed at https://gis.mbakerintl.com/carsonwatersubconservancydistrict/.

450 Stormwater Management: *This activity's objective prevents future development from increasing flood hazards to existing development, to protect 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 to update LID ordinances throughout the watershed. This project examined existing LID language and provided draft LID ordinance language to Douglas, Lyon, and Carson City. Douglas County's stormwater master plan utilized the 2018 LID language in this report and was adopted by the County.

Contractors conducted multiple area drainage studies (refer to section 410) 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.

- CWSD continues, through 2024, to support a web interface that allows access to flood information that is not in the regulatory floodplain. This interface is available to county staff and residents and can be accessed at https://gis.mbakerintl.com/carsonwatersubconservancydistrict/.

500 Flood Damage Reduction Activities

510 Floodplain Management Planning: *This activity's objective credits community for 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:

Floodplain Management Working Group

CWSD's Watershed Program Manager facilitates the Carson River Coalition Floodplain Management Working Group. This group meets quarterly on the fourth Wednesday of January, April, July, and October from 1:30 pm to 3:30 pm. Table 3.7 lists meeting dates and additional stakeholder outreach.

County and regional floodplain & stormwater projects typically attend these meetings. The group also discusses implementation of river rehabilitation and flood projects funded by other state and federal entities. Agendas and Meeting notes are available on CWSD's website.

Table 3.7 Carson River Coalition Floodplain Management Meetings

Stakeholder Outreach			
DATE (S)	**Project**	**EVENT/OUTREACH EFFORT**	**Approximate # Reached**
7/26/2023	Stakeholder Outreach	Carson River Coalition Floodplain Management Working Group	24
8/30/2023	Stakeholder Outreach	Flood Plain Management Plan Update Kickoff Meeting	32
10/4/2023	Stakeholder Outreach	CRFMP Stakeholder Interviews (CC)	4
10/25/2023	Stakeholder Outreach	Carson River Coalition Floodplain Management Working Group	21
11/3/2023	Stakeholder Outreach	CRFMP Stakeholder Interviews (DC)	5
12/13/2024	Stakeholder Outreach	CRFMP Stakeholder Interviews (SC)	3
1/24/2024	Stakeholder Outreach	Carson River Coalition Floodplain Management Working Group	41
4/24/2024	Stakeholder Outreach	Carson River Coalition Floodplain Management Working Group	35
		Stakeholder Outreach Total	**165**

Risk MAP Discovery

In 2011, CWSD staff conducted the Risk MAP Discovery process to better understand the local flood risk and mitigation efforts 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 . An update of the Regional FMP began in 2023 and has continued through 2024.

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

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CWSD 2022 Engagement Plan, Appendix A:

Table 1. Outreach Objectives & Messages

Audience	Objectives	Primary Messages	Supporting Messages
Community Officials & Business Community	Community engagement will raise awareness of: ▪ local flood risk; ▪ value of floodplains; ▪ importance of flood preparedness as part of community emergency management.	▪ Communities save $7[1] on flood damage for every $1 spent on mitigation. ▪ See video Carson River Floodplains are Worth Conserving: What officials need to know - https://www.youtube.com/watch?v=ZGco3s6K_AY ▪ See video Carson River Floodplains are Worth Conserving: A Case for Developers - https://www.youtube.com/watch?v=aR9aaecjmbA ▪Nevada Floods, Be Prepared.	▪ Disaster cost less when communities invest in flood preparedness. ▪ Open floodplains lands provide many benefits: they reduce danger from flood water, filter, and recharge groundwater, and provide habitat for plants and animals. ▪ Know your flood risk by visiting NevadaFloods.org.
Homeowners, and Renters	Community engagement will raise awareness of: ▪ local flood risk; ▪ value of floodplains; ▪ how to protect home, property, and person before, during, and after a flood; and ▪ the importance of a personal emergency plan.	▪ Nevada Floods, Be Prepared ▪ See Video: Carson River Floodplains Are Worth Conserving: Agriculture is a good fit https://www.youtube.com/watch?v=2TTYIS3oxC0&t=112s ▪ Flood Insurance reduces flood losses: $7* is lost for each flood disaster for every $1 spent to plan & prepare for floods.	▪ Disaster cost less when communities invest in flood preparedness. ▪ Open floodplains lands provide many benefits: they reduce danger from flood water, filter, and recharge groundwater, and provide habitat for plants and animals. ▪ Know your flood risk by visiting NevadaFloods.org.
Educators and School Children	Community engagement will raise awareness of: ▪ local flood risk; ▪ value of floodplains; ▪ how to protect home, property, and person before, during, and after a flood; and ▪ the importance of a personal emergency plan.	▪ Understand what rivers and alluvial fans are in the Carson River Watershed and characteristics of their floods at various times of year. ▪ Understand what a "watershed" and "floodplains" are. ▪ There are even ways for students to prepare for floods. ▪ Share what you learned about flooding when you go home.	▪ You live in a Watershed with many floodplains. ▪ Low-lying lands next to rivers are prone to flooding. Floodplains give water space to spread out and slow down runoff from storms and snowmelt. ▪ Distribute an activity book that lists items to include in an emergency kit, a fill-in portion 'in case of emergencies,' and a section for adults to discuss preparedness with kids.

[1] Mitigation Saves. National Institute of Business Sciences. https://www.nibs.org/files/pdfs/ms_v4_overview.pdf. Accessed 12/16/2022.

Table 2: Suggested Actions #30-34 of [2018 Carson River Watershed Regional Floodplain Management Plan]

SA #		CRS	SUGGESTED ACTION	Responsible Party	Existing or Potential Funding Partner
FLOODPLAIN AND FLOOD HAZARD OUTREACH AND EDUCATION (30-34)					
FLOODPLAIN AND FLOOD HAZARD OUTREACH AND EDUCATION (30-34)	30	330	Continued implementation of watershed-wide outreach and education program about floodplain importance and flooding hazards.	FAW Working group which includes CWSD, Federal, State and Local Jurisdictions	FEMA; NDWR, and Federal, state and local partners
	31	330	Promote and participate in Annual Flood Awareness Week (FAW) and events throughout the year with the objective of providing information about protection of floodplains, flooding and flood hazards to the general public.	FAW Working group which includes CWSD, Federal, State and Local Jurisdictions	All Federal, state and local funding sources
	32	330	Develop and update media in conjunction with FAW working group (social media, videos, brochures, web content, press releases etc.) for distribution throughout watershed with consistent messages and information for the general public.	FAW Working group which includes CWSD, Federal, State and Local Jurisdictions	CWSD, NDWR, USACE
	33	330	Promote FAW partner websites (e.g., NevadaFloods.org, National Weather Service, CWSD, and county websites) which provide information on the Regional Floodplain Management Plan, floodplain protection, flood risk, emergency preparedness, and emergency contact information. Link to one another's websites and social media sites to amplify message.	In conjunction with Flood Awareness Campaign led by NDWR, CWSD, NOAA -NWS Reno specifically address flood risk and local jurisdictions have websites as well which also link to these websites.	CWSD, NDWR, NOAA -NWS Reno
	34	330	Utilize special Events, River Work Days, and other outreach opportunities in conjunction with FAW working group to raise awareness of flooding hazards and importance of floodplains.	FAW Working group which includes CWSD, Federal, State and Local Jurisdictions	All Federal, state and local funding sources