

**CRS ANNUAL REPORT**  
**(Period of July 1, 2016 to June 30, 2017)**

On Activities Associated with the

**Carson River Watershed**  
**REGIONAL FLOODPLAIN MANAGEMENT PLAN**

Submitted for:

**DOUGLAS COUNTY**  
and  
**CARSON CITY**  
and  
**STOREY COUNTY**

September 22, 2017

Prepared by:



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This annual report provides progress on the [Carson River Regional Floodplain Management Plan's \(Regional Plan\)](#) suggested actions for Carson City, Douglas and Storey County. This report outlines regional floodplain management actions which provide credit for the National Flood Insurance Program's Community Rating System (CRS). July 1, 2016 to June 30, 2017, Regional Floodplain Management work initiated, completed, or administered by the Carson Water Subconservancy District (CWSD) are documented in this report.

### **1.0 Background**

In 2008, the Regional Plan was 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. A [Supplemental Update of the Regional Plan](#) was subsequently adopted by these five counties in 2013. A small portion of Storey County is within the Carson River Watershed but its board has not formally adopted the Regional Plan or its Supplemental Update. The Regional Plan and FEMA Discovery update began in mid-2017 and is scheduled to be completed by 2018 (See specifics in Section 2.1.c.1 below).

The Regional Plan's purpose is to create long-term vision and strategies for floodplain management to protect watershed resources and mitigate flood hazard impacts in the Carson River Watershed. The Regional Plan 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.

In 2006, CWSD became a Cooperative Technical Partner (CTP) with FEMA. Through this program CWSD can apply for 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 2006, CWSD has received seven 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).

## **2.0 Activities Conducted for this Reporting Period**

### **2.1 Stakeholder Involvement**

Several stakeholder groups provide watershed level input and assistance in the implementation of the Regional Plan.

#### **2.1. a 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).

A two-day CRC Watershed Forum was held on February 22-23, 2017. A conference schedule is available upon request.

#### **2.1. b River Corridor/Floodplain Management Working Group –The River**

Corridor/Floodplain Management Working Group is a sub-committee of the CRC with a focus on regional floodplain management issues. This group met three times (7/27/2016, 12/7/2016, and 5/11/2017) during the last year to discuss implementation of river and flood projects, and plans for FEMA funding. Agendas and Meeting notes are available on our website. In addition, a Carson River Regional Flood Management Workshop was conducted March 8, 2017, to discuss best options for mitigating flood risk from a record amount of snowmelt in the Sierra.

#### **2.1.c 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 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 March 8, 2017 to discuss projects CWSD should pursue for FEMA Mapping Activity Statement (MAS) 8 funding and 2017 flooding issues and damages to date. The agenda and meeting notes are available at CWSD.

#### 2.1.c.1 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 2012 Discovery Report identified high flood risk areas and flood hazard solutions, for mitigating risk on a watershed-wide basis and prioritized projects per County. CWSD is updating Discovery report, in conjunction with a Regional Floodplain Management Plan update and both will be completed by 2018.

### **2.2 Low-Level Flooding/Stormwater Management**

The area subject to the General Permit for small Municipal Separate Storm Sewer System (MS4s) initially identified as the Carson City Urban Area by the EPA, is multi-jurisdictional including non-contiguous parts of Carson City, Indian Hills, and Douglas County (Johnson Lane and Clear Creek). Based on 2010 Census data, Douglas County and Lyon County expect areas requiring MS4 permit may increase in the future. No action related to MS4 was taken by CWSD during this reporting period.

#### 2.2.b Promote Low Impact Development (LID) Use in the Carson River Watershed

In April 2015, the CWSD board approved the Low Impact Development in the Carson River Watershed report (LID Report). The report outlines how LID can assist local communities in managing stormwater, underscores LID benefits, discusses useful LID practices in our area, recommends how to implement LID. CWSD staff presented the LID Report to county staff and planning commissions, except in Douglas County. CWSD plans to address Douglas County Planning Commission once LID Report can be placed on their agenda. Planning discussions regarding how best to assist the Counties further with implementation of LID projects have occurred. The *Draft Carson River Adaptive Stewardship Plan Update 2017* identifies LID projects as a management measure to aid water quality improvement. CWSD is keeping a dialogue open with Counties about LID implementation and potential LID project locations.

### **3.0 Implementation of Suggested Actions**

The [Regional Floodplain Management Plan](#) divides implementation strategies into six categories and provides suggested actions for each category. The following sections provide an overview of the work conducted for each category during this reporting period.

#### **3.1 Protect Floodplain Natural Functions and Values and Responsible Entities**

*Progress during this period on Suggested Actions 1 -10 of the Regional Plan include:*

- Weed management and streambank stabilization projects have continued throughout the Dayton Valley reach of the Carson River. Planning continues for additional projects located on both private property and on lands owned by various public entities near Dayton and Ft. Churchill State Park. Areas

damaged by the winter flooding and record water levels were accessed; however, the water remained too high throughout June 2017 to access sites properly for damages, so there may be additional sites located during the next reporting period.

- CWSD helps fund the Alpine Watershed Group (AWG) to continue their work in the Upper Carson River Watershed.
  - AWG has partnered with American Rivers to complete Phase II of the Hope Valley Meadow/Floodplain and West Fork restoration in late 2016. This phase of the project stabilized an oxbow which had been identified as likely to fail. CWSD conducted two site tours in the Spring and Summer of 2017. The project survived the highwater runoff relatively unscathed and is functioning as expected.
  - American Rivers conducted a meadow assessment of the upper reaches and additional restoration sites are being pursued with AWG and USFS partners in Hope, Charity and Faith Valley's.
  - Alpine County finalized the purchase of the Markleeville Creek Floodplain Restoration Project site on 12/23/13. The project is at 95% design and is expected to cost around 1.2 million. Funding continues to be pursued from various sources including California's Department of Water Resources Integrated Regional Water Management (IRWM) grant program, Supplemental Environmental Project funding through the Lahontan Regional Water Quality Control Board, Wildlife Conservation Board, and the Sierra Nevada Conservancy.
  - Last reporting period, AWG and the USFS, USBLM, and Alpine County partnered and completed the restoration, improvement and enhancement of shoreline areas and limited off highway vehicle access along the East Fork of the Carson River between Centerville Flats and Hangman's Bridge. The project focused on providing recreation access while restoring riparian vegetation and limiting future damage. The AWG and USFS are looking at other areas along the East Fork to conduct a similar project.

### **3.2 Higher Regulatory Standards**

CWSD is working collaboratively with County planners and floodplain managers to update local flood regulations.

*Progress during this period on Suggested Actions 11 – 13 of the Regional Plan include:*

- Floodplain Ordinances were drafted which align with the new FIRMs in each county. These draft ordinances will need to be modified per County to incorporate the final model update protocol, any specific mitigation measures, and different (higher) County regulatory standards. The delivery

of updated floodplain ordinances is dependent on effective date of revised FIRMS.

- Protocol and Procedures for Carson River Flood Model was also completed and will also need to be finalized with the counties once the FIRMs become effective.

### **3.3 Flood Data Information and Maintenance**

*Progress during this period on Suggested Actions 14 – 22 of the Regional Plan include:*

- a. MAS 4 completed final phase of the Carson River Physical Map revision supports FEMA’s map modernization program (SA – 15). These maps have been in review since submission in March 2017 with the anticipation they will be effective by the end of 2018. MAS 5 was completed December 2016 and included from the Alpine Creek in Douglas County and the Eagle Valley Drainage in Carson City Restudy and Remapping projects. MAS 6 has been underway since September 2016 and includes Goni Canyon (SA- 15) and Ramsey Canyon in Lyon County Restudy and Remapping.
- b. MAS 4 completion also finalized un-steady state model from Carson Valley in Douglas County through Carson City to Lyon County above Lahonton Reservoir (SA – 14).
- c. CWSD continues to work with FEMA as a Cooperating Technical Partner. It is working on MAS 6 and MAS 7 and has applied for and received funding for MAS 8 (SA- 16).
- d. As part of MAS 7, CWSD is working with the US Army Corps of Engineers to map alluvial Fans in the Carson River Watershed. These alluvial fan maps will be implemented in the Regional Plan.
- e. Douglas, Lyon and Storey County are working with USGS to fly LIDAR as a higher level of detail which can be implemented in future FEMA mapping efforts. This data will be implemented in MAS 8 in Lyon and Storey Counties.

### **3.4 Channel Migration and Bank Erosion Monitoring**

*Progress during this period on Suggested Actions 23 – 29 of the Regional Plan include:*

- CWSD continues to fund Carson Valley Conservation District (CVCD); Dayton Valley Conservation District (DVCD); and Lahontan and Stillwater Conservation Districts (LSCD) to monitor known hazard areas and channel migration to document and update changes to the river channel (SA-23).
- CWSD worked with counties and conservation districts to lobby the Nevada Legislature to fund \$250,000 for the State Clearing and Snagging Fund. Administered by the NWR Division and combined with CWSD funds, this funding was used by local conservation districts to undertake clearing and snagging projects throughout the watershed to assist hazard removal.

- CWSD funded DVCD and CVCD to complete a winter flood damage inventory in federally declared disaster areas and met with FEMA officials in Spring of 2017.
- CWSD assisted in funding CVCD bio-engineering techniques used by the Carson Valley Conservation District and The Nature Conservancy at River Fork Ranch along Brockliss Slough and the East Fork to promote use of non-structural and bio-engineering for river restoration and rehabilitation projects (SA-28).
- CWSD provided match funding for a DVCD monitoring study cataloguing bank stabilization projects completed. Federal funds were provided by NDEP Clean Water Act 319. The project will help determine what projects are still in place and what will need repair. The final report was completed and submitted to NDEP during this reporting period.
- CWSD continues to fund Alpine Watershed Group (AWG) in Alpine County, California. AWG is the first line of defense for flood hazard mitigation in the Watershed. This organization's ongoing work to rehabilitate and restore river function in Alpine County benefits the entire watershed.
- AWG, in partnership with Humboldt-Toiyabe National Forest (USFS), Bureau of Land Management (BLM), Friends of Hope Valley and Alpine County, was awarded a restoration grant from California State Parks' Off Highway Motor Vehicle Recreation (OHMVR) program.
  - Phases I and II of the OHMVR grant project restored riparian habitat along the banks of the East Fork of the Carson River currently impacted by off-road vehicle travel associated with dispersed camping. All restored sites are located on USFS and BLM lands within Alpine County. The project area includes the reach of the East Fork from its confluence with Silver Creek to Hangman's Bridge just east of Markleeville. Implementation began in the fall 2015, the third phase (an ~450 feet bank stabilization project) was completed and finalized during this reporting period.
- The Friends of Hope Valley in partnership with the Alpine Watershed Group continue to plant willow stakes and complete bio-engineering bank stabilization projects with volunteers in Hope Valley. CWSD supports Markleeville Creek Day and the Alpine Aspen Festival with staff assistance and funding so these organizations can continue their monitoring, bank stabilization, and rehabilitation efforts.

### **3.5 Floodplain and Flood Hazard Outreach and Education**

*Progress during this period on Suggested Actions 30 – 34 of the Regional Plan include:*

Progress during this period:

- MAS 5 provided CWSD funding to assist counties in Nevada Flood Awareness Week (FAW) held Nov. 14-19<sup>th</sup>, 2016. CWSD staff met monthly throughout

2016 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, Carson City, and Lyon County hosted FAW events.

- With funding from MAS 7, staff is working with the FAW committee monthly to plan and implement Flood Awareness Week (FAW) to be held Nov. 12-17, 2017. A website was created in 2014 and is updated with current information regularly. The website is hosted by Nevada Division of Water Resources (NDWA) at [NevadaFloods.org](http://NevadaFloods.org). The FEMA grant will support additional billboard placement in the Carson River Watershed for 2017.
- MAS 6 funded creation of four "Floodplains as Community Assets" videos (A 30 second PSA, and 3 other short videos aimed toward public officials, the development community, and the agriculture/public) were created during the reporting period. The videos are available on the [Carson River Watershed YouTube Channel](#).
- Watershed 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 are being updated and will be available shortly on the Flood Awareness section on [www.cwsd.org](http://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.
- Several community events, STEAM nights, and Carson River Work Days were attended by staff where the floodplain model was run and the importance of floodplain protection discussed with adults and students.

### **3.6 Reduction of Infrastructure Impacts**

There are opportunities throughout the watershed for the enhancement and/or design and maintenance of roads, culverts, grade controls, and bridges to accommodate floodwaters better, protect floodplains, and decrease harmful erosion.

Progress made during this period:

- Both Douglas and Lyon County are exploring options for creating a Stormwater Fee to enhance stormwater operations throughout each County. CWSD is supportive of these efforts.
- During this reporting period CWSD met with agricultural producers, the Counties, Nevada State Lands, and FEMA to discuss using FEMA emergency funds to fix/replace and potential upgrade grade structures damaged during winter/spring flooding.



**4.0 Conclusion**

CWSD is working diligently to coordinate the completion of the 38 suggested actions in the Floodplain Management Plan 2008/2013 adopted by the five counties along the Carson River. The County's continued partnerships are essential in implementing these actions.

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

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