

ANNUAL REPORT
(Period of June 1, 2010 to June 30, 2011)

On Activities Associated With the
Carson River Watershed
REGIONAL FLOODPLAIN MANAGEMENT PLAN

Submitted for:

DOUGLAS COUNTY
and
CARSON CITY

Prepared by:

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1.0 Background

In 2008, all five counties along the Carson River adopted a Regional Floodplain Management Plan that would provide consistency in planning efforts, programs and projects, help protect community members from flooding hazards, and conserve floodplain lands. This plan was formally adopted by the following counties:

Douglas, Carson City, Lyon, and Churchill Counties in Nevada and Alpine County in California.

Of these counties, Carson City and Douglas County participate in the Community Rating System (CRS) program.

The purpose of the plan is to create long-term vision and strategies for floodplain management to reduce flood damage impacts. The 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 river continuity and connection of river to its floodplain;
- Promote conservation of lands within the river corridor

Responsible parties have been identified for implementation of the plan, and existing or potential funding sources have also been identified.

2.0 Activities Conducted for this Reporting Period

2.1 Stakeholder Involvement:

Several stakeholder groups are in place that provide for watershed level involvement and input to the implementation of the regional plan.

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). Carson City and Douglas County participate in the CRC and working groups. The meetings are open to the public and information about meetings is available at www.cwsd.org.

Several items were presented and discussed at main group CRC meetings during this period regarding floodplain management.

December 13, 2010 - An update on floodplain management planning for the Carson River Watershed was presented to the group.

May 16, 2011 - As part of the Carson River forum there was a presentation given on floodplain management

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. Meeting dates during this reporting period include:

8-10-10 12-8-10 1-19-11 3-29-11

The main discussion in this group was about how to protect the floodplain. The group reviewed the completed Floodplain Ecosystem Valuation Project. During January and February the group distributed several flood awareness posters in the Douglas County, Carson City, and Dayton areas. The group also reviewed the FEMA-funded Lyon County Floodplain Modeling and Mapping Project (CTP Project), which is explained in detail under the Carson River Mapping and Modeling Project Management Team section below, and carried out a public regional floodplain protection and flood awareness campaign.

Carson River Mapping and Modeling Project Management Team

This committee met during this reporting period on the following dates:

1-21-11 3/11/11 5/13/11

The main purpose of the Carson River Mapping and Modeling Project Management Team (Team) was to serve as the steering committee for the implementation of the FEMA-funded Lyon County project. This reporting period the Team met with the consultants HDR and R.O. Anderson Engineering to review the Hydraulic Modeling and Mapping Guidelines for the Carson River. The consultants gathered existing long-term stream gauge data along the Dayton Valley area of the Carson River and did additional surveying to create a more complete modeling/mapping program. The result was completion of the FEMA Mapping Activity Statement (MAS) #1, a document that will provide specifics regarding how modeling is conducted in the Carson River watershed in order to provide consistency and account for cumulative impacts, with a map of the middle Carson River through Dayton Valley.

Goals for next year include the completion of the FEMA MAS #2 which extends mapping upstream from Dayton Bridge to the county line between Carson City and Douglas County.

2.2 Low-Level Flooding/Stormwater Management

- a. **Carson Clear Water Revival (BMP) Program.** This program began 1/09/09 as a pilot program in Carson City but will include workshops for Douglas County staff. If the program is successful in Carson City, the plan is to expand the program into all watershed counties. The focus of the program is on landowners and how to reduce impact from low level flooding on their properties.

During this reporting period the following topics were discussed:

- o How to expand the outreach over the winter months
- o Tentative schedule for next spring/summer workshop and contests.
- o Construction, completion in October 2010, and open house at Corrado in June 2011
- o Community workshop in June 2011

- Outreach materials
 - Signage and press releases
 - Open house at Corrado in June 2011
 - Community workshop in June 2011
 - How to continue the program with Genie resigning

3.0 Implementation of Suggested Actions

The regional plan divides strategies into six categories and provides suggested actions for each category. The following sections provide an overview of the work that was conducted for each category during this reporting period.

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

Suggested actions include:

- a. Adopt a Living River approach which will involve all entities.
- b. Floodplain & flood hazards should be considered with open space program objectives when selecting acquisition targets and establishing management strategies for open space - local governments, other entities.

Progress made during this period:

- Douglas County has continued to work with stakeholders and landowners to secure over 13,500 acres in conservation easements and land acquisitions in Carson Valley.
- Lyon County began evaluation on how the Walker Property which is adjacent to the river can provide flood storage for the Dayton area.
- Dayton Valley Conservation District and Lyon County continue to enhance floodplain value and function on the 300 acre “Rolling A Ranch” property just outside of Dayton. This property was in agriculture and was recently acquired by the county as open space and floodplain.
- Carson City has purchased through their open space program approximately 725 acres of land next to the Carson River.

- CRC River Corridor Working group continued to investigate options and methods for setting up a floodplain leasing program. This program may be appropriate for landowners that are not interested in participating in land acquisition, conservation easements, or other programs aimed to protect floodplain function and natural values.

3.2 *Higher Regulatory Standards*

Suggested Actions include:

- a. Implement or enhance county ordinances that require 1:1 or greater mitigation ratio for floodplain storage volume. - local governments.
- b. Develop and conduct unsteady state modeling to identify storage requirements - local & state governments, CWSD. Potential funding thru NDEP, CWSD and other local & state entities.
- c. Include the suggested ordinance language in county ordinances to provide watershed wide consistency. - local governments.

Progress during this period:

- CRC Floodplain Management Team has been in discussion on which hydraulic and hydrologic models to adopt. The committee decided on HEC-RAS as the model of choice along with FLO 2D. The committee also discussed having two models, one for the Carson River and one for the alluvial fan areas and tributaries. A combination of un-steady and steady state modeling will be used.
- September 1, Carson City adopted an updated flood protection ordinance which includes higher standards. The higher standards include 2 feet of freeboard above the BFE, a reduction of the allowable base flood elevation to 0.99 foot, and a requirement to protect the flood volume capacity.

3.3 Flood Data Information and Maintenance

Suggested actions include:

- a. Support FEMA'S Map Modernization Program & encourage FEMA to update FIRM'S with current and future conditions. - FEMA, CWSD and local governments.
- b. CWSD continue to participate in FEMA'S Cooperating Technical Partner Program. - CWSD & FEMA
- c. Flood studies should be conducted for main channel and be used to update FEMA maps and fill data gaps. - CWSD & FEMA. Potential funding by Federal, state and local grant sources.
- d. Elevation Reference Marks (EFM) should be permanent monuments and updated on regular basis. -local governments
- e. EFMs should be in same datum as base flood elevations on FIRMs or a datum that is readily convertible to FIRM datum. - local governments
- f. A master list of EFMs should be developed, maintained and made available to interested parties. - local governments & CWSD
- g. Photo-Monitoring program should be developed to document flooding and flood hazards in consistent matter. - CWSD, CRC and local governments

Progress during this period:

- FEMA has provided \$300k in funding to the CWSD for the Lyon County modeling and mapping project. Flood Technical committee will serve as steering committee for the project to ensure that project has regional benefit.
- Douglas County continues to work with FEMA to correct inaccuracies in the updated FIRMs for the eastern alluvial fan area of Carson Valley to properly reflect current conditions.
- The FEMA funded Lyon County project will correct inaccuracies in the maps for that portion of the river system.
- Flood committee agreed that HEC-RAS modeling software will be used for floodplain modeling and delineation of floodway where there are gaps.
- Funding was secured from NDEP and CWSD to establish a blue ribbon committee of regional and local experts to investigate which model would be most appropriate

- CWSD has leverage money that can be used for flood studies.
- Carson City has included within the updated flood protection ordinance the use of the 2010 Carson City Control Network for vertical and horizontal control of flood plain changes or elevation certificates.

3.4 Floodplain and Flood Hazard Outreach and Education

The main goal of this category is to develop watershed-wide outreach and education program about floodplain importance and flooding hazards. - CRC working group – Potential funding thru Federal, state and local grant sources.

- A brochure about the regional floodplain management plan, flooding hazards, and the importance of floodplain protection has been developed and is distributed at community events and other outreach opportunities.
- Flooding/Floodplain protection display at Carson City library January 2010
- Watershed website provides link to plan at www.cwsd.org
- Numerous articles about the plan, floodplain protection and flooding were included in the watershed newsletter that is distributed to over 600 individuals throughout the 6 county area.
- CWSD staff developed and facilitated a flooding and floodplain protection activity for about 150 high school and elementary students.
- Several Carson River Work Days were held and included a station about flooding and the importance of floodplain protection.
- CWSD staff provided presentations about regional floodplain management plan and implementation activities to the following:
 - i. CWSD Board of Directors
 - ii. Carson River Coalition
 - iii. Floodplain Management Association
 - iv. Meeting of all County Managers within the Carson River Watershed

3.5 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:

- Douglas County obtained funding from the Nevada Hazard Mitigation funding to work on the culvert under Highway 395 through Carson Valley to enhance its flow capacity and reduce flooding impacts.
- Carson City through the Parks Department continues to sponsor Eagle Scout groups to plant willows along the river bank for soil stabilization and enhanced habitat.